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ECONOMIC AND STATISTICAL ANALYSIS DIVISION

of the

ECONOMIC RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

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This progress report of U.S.D.A. and cooperative research is primarily a tool for use of scientists and administrators in program coordination, development and evaluation; and for use of advisory committees in program review and development of recommendations for future research programs.

The summaries of progress on U.S.D.A. and cooperative research include some tentative results that have not been tested sufficiently to justify general release. Such findings, when adequately confirmed will be released promptly through established channels. Because of this, the report is not intended for publication and should not be referred to in literature citations. Copies are distributed only to members of Department staff, advisory committee members and others having a special interest in the development of public agricultural research programs.

This report also includes a list of publications reporting results of U.S.D.A. and cooperative research issued between October 1, 1962, and September 30, 1963. Current economic and statistical research findings are also published in the Outlook and Situation Reports, Agricultural Economics Research, and The Farm Index. This progress report was compiled in the Economic and Statistical Analysis Division, Economic Research Service, U.S. Department of Agriculture, Washington, D. C.

UNITED STATES DEPARTMENT OF AGRICULTURE

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INTRODUCTION

The Economic and Statistical Analysis Division is one of the three research Divisions of the Economic Research Service concerned with domestic and foreign economic analysis. This Division has the responsibility for the domestic economic analysis. This includes research directed toward (1) the identification and measurement of relationships among the factors affecting the demand, supply, and price of agricultural commodities; (2) identification and measurement of broad relationships between the farm economy and the national economy; (3) measurement and analysis of farm income and income of farm population; (4) measurement and analysis of demand for and consumption of food and other farm products; (5) long-run projections of economic growth and the demand for farm products; (6) measurement and analyses relating to population, farm manpower, levels of living, diffusion of information, adoption of farm practices, goals, values and decision making, and other rural problems and trends; and (7) historical research relating to major developments in farming and major changes in policies, programs, and organizations of the Department.

Development and improvement of statistical data and development, adaptation, and application of new and improved methods and techniques of statistical analysis are integral parts of this process.

This research provides the information that underlies the appraisals of the current and prospective economic situation for agriculture and for agricultural commodities which are the heart of the outlook work. It also provides the information required for analyses of the probable effects of alternative programs and the measurement of the effects of actual programs.

The Development and Trade Analysis Division and the Regional Analysis Division are responsible for foreign economic analysis. Research in the economic problems of agricultural production and utilization of land and water resources are the responsibilities of the Farm Production Economics Division and the Resource Development Economics Division. The Marketing Economics Division is responsible for research in all aspects of the economics of the marketing of farm products.

In this report, economic and statistical analysis research is reported under the six area headings shown in the table of contents. For each area a description of the current research program is provided. This includes research under cooperative agreements. A preliminary report of progress and a list of publications is given for each area for the period October 1, 1962 through September 30, 1963. The research effort in the Economic and Statistical Analysis Division amounts to approximately 75 professional man-years.

Following are some of the recent research accomplishments of the Economic and Statistical Analysis Division.

Analysis of the feed grain programs in operation showed that feed grain prices have been low in recent years, both in relation to prices of live-stock products and to prices of other inputs in the livestock enterprise. Low feed prices were accompanied by a substantial increase in the rate of feeding per animal unit from 1956 to 1960. Other analyses compared provisions and results of the feed grain programs in operation with provisions and probable results of alternative programs.

A number of special analyses were made to determine the impact of existing Government programs, and proposed alternative programs on production, utilization, price and income to producers of agricultural commodities. Such analyses are a necessary aid to legislators and administrators in formulating farm policy and programs. Examples of such studies include the impact of the wheat certificate program and alternatives on acreage, production, price, income and utilization of wheat; the magnitude and probable influence of Section 32 surplus disposal programs for commodities such as potatoes, dry edible beans, and poultry and eggs; and appraisal of the existing cotton program and alternative programs as they might affect the U.S. cotton industry.

A special study of the carpet wool industry during the last decade reveals substantial changes in types of fibers used in surface construction. Wool still is the major fiber used in surface construction, but its share of the total has been declining in recent years. The value of domestically produced carpet and rug shipments has increased sharply.

The technical bulletin issued in December 1962 describing the major economic relationships affecting the supply and price of hogs won first prize in the American Farm Economic Association Awards for Published Research competition.

A technical bulletin released in September 1963 develops estimates of final domestic textile fiber consumption in the United States and measures the effect of the major economic factors on variations in fiber consumption. The statistical analyses will make possible better forecasts of consumption of cotton, wool and other fibers.

A study of the effect of product price uncertainty on the specification and estimation of supply functions was completed. One model assumed that firms anticipate product price to fall within certain upper and lower bounds and minimize maximum loss subject to this condition. A second supply model assumed that firms maximize expected profit with price expectations differing from firm to firm. Results from analyses using annual cotton, wheat, and corn price and acreage data suggest that the uncertainty supply models could be useful in analyzing the effect of policy measure which drastically change uncertainty conditions.

One of the activities in price, supply and consumption analyses is the adaptation of statistical and computational methods to electronic data processing equipment. As part of this program, a stepwise multiple regression analysis program was adapted. The stepwise procedure selects variables for the regression equation according to the ones that can cause the greatest reduction in variance on a single iteration. Variables are entered and retained only if they meet a prescribed significance test.

An article entitled "A Model for Selecting Minimum Cost Combinations of Automatic Data Processing Equipment" was prepared. It presents a decision model which enables one to choose, from among the alternatives available, the combination of computing equipment that minimizes computing costs for a given amount and composition of work. The model, together with other pertinent criteria, can provide a basis for more systematically selecting a machine complex for a data processing installation. It can be useful also in deciding whether to change a machine complex as a result of changes in the organization's workload or the availability of improved equipment.

The report, Agriculture and Economic Growth, indicates that throughout the history of the United States agriculture has made large and decisive contributions to the Nation's economic development. One of the most important during the 19th Century was the provision of export earnings. Contributions during the 20th Century can be identified under seven headings: (1) Release of workers to industry; (2) lowering of food costs relative to income; (3) increased purchases of industrial goods; (4) continued export earnings; (5) sustained output during economic depression; (6) response to wartime needs; and (7) assistance to world economic development. Most of the dramatic contributions of agriculture to our domestic economic growth lie in the past, but those in the future will still be substantial. The dynamic contributions of American agriculture in the years to come will be to world economic growth.

Preliminary estimates for 1958 were completed for the 18 sectors of the agricultural component of an input-output model covering the entire United States economy. The complete model is being developed under the leadership of the Department of Commerce. This is the first comprehensive inter-industry transaction table to be developed since 1947. It will permit up-to-date analyses of the quantitative relationships between agriculture and other sectors of the economy.

Basic data on the supply and distribution of all major foods were published each quarter in the National Food Situation, and annually in Agriculture Handbook No. 62, Consumption of Food in the United States.

In the area of longer run projections, the primary work is to prepare each year a 5-year outlook for U.S. agriculture under different program alternatives. Such a report was prepared in 1962-63 projecting demand, output,

prices, and incomes for agriculture for 1967. In addition to the regular program, much of the long-run projections work provides a basis for analyses of water and other long-run resource development programs.

The book entitled Century of Service: The First 100 Years of the United States Department of Agriculture was published during the year. The authors show the Department's response to varying economic and social conditions affecting agriculture. The volume has been described in a historical journal as "one of the finest official histories to come from a government department."

The Cuban crisis brought immediate demands for historical material based upon the experiences of the Department in World War II and the Korean War. Material important in making vital decisions was supplied immediately, while some longer term research in this area has continued.

Among the major contributions in Farm Population and Rural Life, was the preparation of estimates of the size and components of change of the farm population from 1920 through 1962. Studies of the hired farm labor force published during the year included, for the first time, data on the skill level of farm wage workers. Two reports were published on changes between 1950 and 1960 in the educational status of farm and nonfarm youths. One report compared the age-grade progress of farm and nonfarm children enrolled in school. The second report, analyzing school dropout rates of farm and nonfarm children in 1950 and 1960, showed a decline of from 54 percent to 32 percent in the proportion of school dropouts among farm males 16-24 years' old.

AREA NO. 1. COMMODITY SITUATION AND OUTLOOK ANALYSIS

Problem. Because of the instability of the prices he receives and rapidly changing conditions of agricultural production, the farmer stands in special need of accurate appraisals of his economic prospects if he is to plan and carry out his production and marketing activities in an efficient and profitable way. The typical farmer cannot afford to collect and analyze all the statistical and economic information necessary for sound production and marketing decisions. It has long been a goal of the Department to provide the farmer with economic facts and interpretations comparable to those available to business and industry, through a continuous flow of current outlook information; the development of longer range projections of the economic prospects for the principal agricultural commodities; and analyses of the economic implications of existing and proposed programs affecting the principal farm commodities.

USDA PROGRAM

The program includes the regular publication of 11 commodity outlook reports; holding of the Annual Outlook Conference in Washington in mid-November; participation of commodity specialists at regional or State outlook meetings or at meetings of farm organizations and agricultural industry groups; preparation and publication of special articles bearing on both the short-run and long-run outlook for farm commodities; issuance of comprehensive statistical bulletins containing the principal economic series pertaining to the various commodities; long-range projections of supply of and demand for the major agricultural commodities; and continuing analysis of the impact of existing and proposed alternative farm programs as they affect output, utilization and prices of these commodities.

The total commodity situation and outlook program currently involves 22 professional man-years.

(a) Livestock and Meat. This work involves 2.5 professional man-years in Washington and 2.0 professional man-years in Denver, Colorado. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation of livestock and meats. These appraisals, developments of interest to the industry, and results of special studies are published 7 times a year in regular issues of the Livestock and Meat Situation, in special additional issues as warranted, quarterly in the Demand and Price Situation and the National Food Situation, and monthly in the Farm Index. A comprehensive analysis of the livestock situation is presented at the Annual Outlook Conference. Outlook appraisals are frequently presented at regional or State outlook meetings, at meetings of farm organizations, and to various agricultural industry groups. Special analyses are prepared from time to time on the probable effect of proposed programs on the price, supply and consumption

of livestock and livestock products. Basic statistical series are maintained, improved and published for general use in statistical and economic analysis. A Statistical Handbook, Livestock and Meat Statistics is published annually.

A Western Regional Field Office in Denver, Colorado, conducts a continuing appraisal of the conditions important to the range livestock industry of the West. The results of this activity are published monthly in the Western Livestock Round-Up, and supplemented by special releases and special materials circulated to the Extension Marketing Specialists of the Western Region.

(b) Fats and Oils. This work involves 2.0 professional man-years in Washington. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation of fats, oils, and oilseeds. These appraisals, developments of interest to the industry, and results of special studies are published 5 times a year in the Fats and Oils Situation, quarterly in the Demand and Price Situation and the National Food Situation, and monthly in the Farm Index. A comprehensive analysis of the fats and oils situation is presented at the Annual Outlook Conference, and more limited appraisals given at meetings with industry groups. Special analyses are prepared from time to time on the probable effect of proposed programs on the price, supply, and consumption of fats and oils and their products. Basic statistical series are maintained, improved and published for general use in statistical and economic analysis. A Statistical Handbook, Oilseeds, Fats and Oils, and Their Products, is being revised for publication in 1964.

Increasing emphasis has been on the effect of increased fat output and export markets on prices and incomes received by farmers.

(c) Dairy. This work involves 2.0 professional man-years in Washington. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation of milk and milk products. Appraisals are published 5 times a year in the Dairy Situation, quarterly in the Demand and Price Situation and the National Food Situation, and monthly in the Farm Index. A comprehensive analysis of the dairy situation is presented at the Annual Outlook Conference. Outlook appraisals are frequently presented at regional or State outlook meetings, at meetings of farm organizations, and to various agricultural industry groups. Special analyses are made from time to time on the probable effect of proposed programs on the production-utilization balance of milk and milk products. Basic statistical series are maintained, improved and published for general uses in statistical and economic analysis. A supplement to Dairy Statistics is being prepared for release in the fall of 1963.

(d) Poultry. This work involves 2.0 professional man-years in Washington. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation for poultry and eggs. Appraisals are published 5 times a year in the Poultry and Egg Situation, quarterly in the Demand and Price Situation and the National Food Situation, and monthly in the Farm Index. A comprehensive analysis of the poultry and egg situation is presented at the Annual Outlook Conference. Appraisals also are frequently presented at regional or State outlook meetings, at meetings of farm organizations and to various agricultural industry groups. Special analyses are prepared from time to time on the probable effect of proposed programs on the price, supply and consumption of poultry and poultry products. Basic statistical series are developed, maintained, improved and published for general use in statistical and economic analysis. Wide fluctuations in returns from producing eggs, broilers, and turkeys, make imperative an effective outlook service for producers of these commodities.

(e) Food Grains. This work involves 1.5 professional man-years in Washington. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation of food grains, which includes wheat, rye, rice, and their products. The appraisals, developments of interest to the industry, and results of special studies are published 5 times a year in the Wheat Situation, annually in the Rice Situation, quarterly in the Demand and Price Situation and the National Food Situation, and monthly in the Farm Index. Outlook appraisals are presented at the Annual Outlook Conference, State or regional conferences, meetings of farm organizations, and to agricultural industry groups. Special analyses are prepared from time to time on the probable effect of proposed programs on the price, supply and utilization of food grains. Basic statistical series are maintained and improved throughout the year, and published annually in Grain and Feed Statistics.

(f) Feed. This work involves 2.0 professional man-years in Washington. The outlook and situation program for feed provides a continuing appraisal of the current and prospective economic situation for feed grains, by-product feeds and forages. These appraisals, developments of interest to the industry, and results of special studies are published 6 times a year in the Feed Situation, quarterly in the Demand and Price Situation, and monthly in the Farm Index. An appraisal of the food use of feed grains is published quarterly in the National Food Situation. A comprehensive analysis of the feed situation is presented at the Annual Outlook Conference. Outlook appraisals also are presented at regional outlook meetings and at meetings of farm organizations and various agricultural industry groups. Special analyses are prepared of the probable effect of current and proposed alternative feed grain programs on supply, prices, utilization and carryover of feed grains. Special attention is being given to the effect of such programs on the feed

grain production-utilization balance. The tendency for production to outstrip utilization has been a major agricultural problem and will continue to require special attention in the years ahead. Basic statistical series covering feed grains, high-protein and other by-product feeds, commercially prepared livestock feeds, and forages are maintained, improved and published for use in statistical and economic analysis. A Statistical Handbook, Grain and Feed Statistics, is published annually.

(g) Citrus Fruits. This work involves 0.5 professional man-year in Washington. The outlook and situation program involves continuous appraisal of the current and prospective economic situation of citrus fruits. Regular appraisals are supplemented by special analyses when needed. Results of these appraisals, findings of special analyses, and long-time series of basic data are published in the Fruit Situation, issued 4 times a year, and in brief reviews in quarterly issues of the National Food Situation and the Demand and Price Situation, and monthly in the Farm Index. A comprehensive analysis of the citrus fruits situation is presented at the Annual Outlook Conference. Presentations also are made at regional or State outlook meetings, meetings of farm organizations, and to various agricultural industry groups. Special studies are made from time to time to determine probable effect of proposed programs on supply, price and consumption of citrus fruits. Basic statistical series on stocks, foreign trade, consumption, and price are compiled, improved and maintained for general use in statistical and economic analysis.

(h) Deciduous Fruits and Tree Nuts. This work involves 0.5 professional man-year in Washington. The outlook and situation program involves a continuing appraisal of the current and prospective economic situation for deciduous fruits and tree nuts. Results of these appraisals, findings of special studies, and long-time series of basic data are published in the Fruit Situation, issued 4 times a year, and in brief reviews in quarterly issues of the National Food Situation and the Demand and Price Situation, and monthly in the Farm Index. A comprehensive analysis of the deciduous fruits and tree nuts situation is presented at the Annual Outlook Conference. Outlook presentations also are made at regional and State outlook meetings, meetings of farm organizations, and to various agricultural industry groups. Special studies are made from time to time to determine probable effect of proposed programs on supply, price and consumption of these commodities. Basic statistical series on stocks, foreign trade, consumption, and price are compiled, improved and maintained for general use in statistical and economic analysis.

(i) Potatoes. This work involves 0.5 professional man-year in Washington. The outlook and situation program provides a continuing

appraisal of the current and prospective economic situation of potatoes. Results of these appraisals, developments of interest to the industry, findings of special studies, and long-time series of basic data are published in quarterly issues of the Vegetable Situation, the National Food Situation, the Demand and Price Situation, and monthly in the Farm Index. A comprehensive analysis of the potato situation is presented at the Annual Outlook Conference. Presentations also are made at regional or State outlook meetings, at meetings of farm organizations, and to various agricultural industry groups. Special studies are made from time to time to determine the effect of current programs and the probable effect of proposed programs on supply, price and utilization of potatoes. Basic statistical series are compiled, improved and maintained for use in statistical and economic analysis.

(j) Vegetables. This work involves 1.5 professional man-years in Washington. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation of fresh and processed vegetables. Results of these appraisals, findings of special studies, and long-time series of basic data are published in quarterly issues of the Vegetable Situation, the National Food Situation, the Demand and Price Situation, and monthly in the Farm Index. A comprehensive analysis of the vegetable situation is presented at the Annual Outlook Conference. Presentations also are made at regional or State outlook meetings, at meetings of farm organizations, and to various agricultural industry groups. Special studies are made from time to time to determine probable effect of proposed programs on supply, price and consumption of vegetables. Basic statistical series are compiled, improved and maintained for use in statistical and economic analysis.

(k) Cotton and Manmade Fibers. This work involves 1.5 professional man-years in Washington. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation for cotton. These appraisals and results of special studies are published 6 times a year in the Cotton Situation, quarterly in the Demand and Price Situation, and monthly in the Farm Index. A comprehensive analysis of the cotton and manmade fibers situation is presented at the Annual Outlook Conference. Outlook appraisals are frequently presented at regional or State outlook meetings, at meetings of farm organizations, and to various agricultural industry groups. Special analyses are prepared on the probable effect of proposed programs on the price, supply and consumption of cotton and manmade fibers and textile products. Basic statistical series are developed, maintained, improved, and published for general use in statistical and economic analysis. A Handbook, Statistics on Cotton and Related Data, is published annually. Recent emphasis has been on analysis of the economic factors which affect the consumption of cotton; foreign trade, including fibers used in textile manufactures entering U.S. foreign

trade; revision of data series on fiber equivalents delivered to the military; appraisal of alternative cotton programs; and price and utilization of U.S. cotton in both domestic and foreign markets.

(1) Wool. This work involves 1.5 professional man-years in Washington. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation of wool and other animal fibers. These appraisals, developments of interest to the industry, and results of special studies are published 4 times a year in the Wool Situation, quarterly in the Demand and Price Situation, and monthly in the Farm Index. Outlook appraisals are presented at regional or State outlook meetings, at meetings of farm organizations, and to various industry groups. Special analyses are prepared from time to time on the probable effect of proposed programs on the price, supply, and consumption of wool and wool textile products. Basic statistical series are developed, improved, maintained, and published for general use in statistical and economic analysis. A Statistical Handbook, Wool Statistics and Related Data, is published annually. Recent emphasis has been directed toward national and international problems dealing with imports and duties; and toward price and utilization studies.

(m) Tobacco. This work involves 1.5 professional man-years in Washington. The outlook and situation program provides a continuing appraisal of the current and prospective economic situation of tobacco and tobacco products. Results of these analyses and findings of special studies are published quarterly in the Tobacco Situation and the Demand and Price Situation, and monthly in the Farm Index. A comprehensive analysis of the tobacco situation is presented at the Annual Outlook Conference. Situation and outlook appraisals also are presented at regional meetings, and at meetings of tobacco grower organizations and trade groups. Special analyses are prepared from time to time on the probable effect of alternative proposed programs on the price, supply, consumption and exports of tobacco. Basic statistical series are developed, improved, maintained, and published for general use in statistical and economic analysis. Recent emphasis has been placed on analyses of consumption of various kinds of tobacco in final products, and the competitive position of U.S. tobacco in world trade.

REPORT OF PROGRESS FOR USDA AND COOPERATIVE PROGRAMS

A. Livestock and Meat

The increase in beef production this year exceeded the increase in demand, and fed cattle prices fell. While part of this drop in the opening months of 1963 was recovered by mid-year, prices of fed cattle remained well under 1962 levels for the second half of the year. Continued large production is expected to cause some further weakening of

cattle prices in the first half of 1964. Pork production also increased in 1963 and pork prices averaged lower than a year earlier. Pork supplies in 1964 likely will be much the same as in 1963 and prices are expected to average slightly higher, especially during the winter and early spring months. Liquidation of sheep and lambs, which began in 1960, continued the past year although the rate slowed somewhat. Lamb prices in the first quarter of 1963 were much higher than a year earlier, but in the remainder of the year averaged about the same as those in 1962. Lamb and mutton production in 1964 is expected to be only a little smaller than a year earlier and 1964 may mark the low point in the present downswing. Prices may be about the same as in 1963.

A special situation report on livestock was released in April to help producers, marketers, and consumers to understand and adjust to changes in the economic situation brought about by the sharp decline in fed cattle and hog prices. It presented basic information on the prevailing fed cattle and barrow and gilt price situation and discussed factors that were likely to influence the future.

To gauge the probable future trend in consumption, special analyses were made of the uptrend in beef and the downtrend in pork in the last decade. Emphasis was also given to study of the cattle cycle which began its current upswing in 1959. Long-run projections (5 years) were developed for cattle, hogs, and lambs as part of a set of ERS projections for the farm economy as a whole. Work on seasonal patterns of prices and production for various classes and grades of livestock and livestock products was continued. Other work in progress includes an analysis of the regional distribution of livestock production.

Livestock and Meat Statistics, Statistical Bulletin No. 333, the first master issue since the original comprehensive Statistical Bulletin No. 230, was released in July 1963.

B. Fats and Oils

Supplies of food fats and oils during the 1962-63 marketing year were a record 16.4 billion pounds (in terms of oil), about 4 percent greater than the year before. Total disappearance rose about 5 percent to a new high, with record exports accounting for most of the increase. The Food for Peace Program again was an important factor in exports. Carry-over stocks of food fats on October 1, 1963 were down slightly from a year earlier, due to a big reduction in soybeans. Stocks of edible vegetable oils, lard and butter were up. Prices received by farmers for 1962 crops of soybeans and cottonseed remained somewhat above CCC support rates whereas flaxseed and peanut prices rested on support. Wholesale prices of all fats and oils during 1962-63 averaged slightly below year earlier levels but oilseed meal prices were somewhat higher.

Most significant development during the year was the strong demand for soybean meal, which far outstripped the demand for soybean oil. The large crush of soybeans resulted in record carryover stocks of about 1.0 billion pounds of soybean oil (crude and refined) on October 1, 1963. Thus, the 1963-64 marketing year started with very large stocks of soybean oil and low stocks of soybean meal. As a result, soybean oil prices were low in relation to prices of both soybeans and soybean meal.

In addition to the regular analytic work and outlook analyses, considerable effort was devoted to improving statistical techniques used in forecasting and the development of new statistical series. Work got underway on a comprehensive statistical bulletin for fats, oils, oilseeds and their products. This handbook is badly needed by commodity analysts, as it has been 10 years since the issuance of the last comprehensive compilation of data. Greater attention is being given to some of the minor oilseed crops and our expanding foreign markets. Long-run projections (5 years) were developed for the major oilseeds, fats and oils as part of an overall set of ERS projections for the farm economy.

C. Dairy

Due partly to a slower rate of increase in production per cow, total output of milk likely will decline to around 125.3 billion pounds in 1963, from 125.9 billion pounds in 1962. Consumption of dairy products from commercial sources was maintained at year-earlier levels in 1963, but preliminary information from all sources for the first 6 months of the year indicated a 2-percent gain. Nonetheless, output continued above total use as stocks of manufactured dairy products and cream (including butteroil) rose seasonally to a record 15.5 billion pounds, milk equivalent, on June 30, about 0.8 billion pounds above a year earlier.

Considerable time and effort have been devoted to analyzing the effects of existing and proposed Government programs on milk production, marketings, prices, consumption, and stocks. Other work in this area includes an analysis of changes in imports of dairy products, in Federal order markets, and in the regional distribution of milk production and marketings. Long-run projections (5 years, by years) for dairying, developed as a part of a set of ERS projections for the farm economy as a whole, were published in November 1962 (ERS-96). This study indicated that milk production and consumption in 1967 would be about the 1962 level, with Government purchases only slightly below the 1962 record. These projections were revised and extended in 1963. A new series was constructed, beginning with 1950, for sales of whole milk, skim milk items, and cream, and the three categories combined, and published in the June 1963 Dairy Situation.

In the August 1963 Dairy Situation, the implications of cost and price relationships on typical dairy farms of the USDA Cost and Return series were examined. A new estimate was prepared--the cost of adding a cow to the milking herd. Marginal cost estimates were well below price (100 pound basis) for Grade A farms in Central Northeastern United States and in eastern Wisconsin from 1951 to 1962, but on Wisconsin Grade B farms costs were closely in line with price. This latter situation also was true for Central Northeastern farms in 1962 and indicates a relatively unfavorable position for Central Northeastern Grade A farms and Wisconsin Grade B farms. However, the opportunity exists for many Grade B producers to change to Grade A status.

D. Poultry and Eggs

In 1962, prices to producers for broilers and turkeys rebounded sharply from the extremely depressed levels of 1961. Egg prices, however, which were relatively favorable in 1961 were lower in 1962. Turkey production was reduced substantially but broiler production was up a little. Much of the recovery stemmed from some increase in demand. But part of the rise in price appeared to represent the re-establishment of the "normal" price-quantity relationships which were thrown out of kilter in 1961 by a chaotic merchandising situation. Late in 1962, higher feed prices than a year earlier began to arrest the output of broilers and also turkeys and eggs. The higher feed prices occurred in the months surrounding the main hatching season when producers can most easily adjust output. Consequently, the number of turkeys and flock replacement chickens being raised in 1963 is not differing appreciably from 1962. Prices to producers for turkeys and eggs this year will probably average about the same to a little higher than last year. But broiler prices will average lower. Also, a significant expansion occurred in the Nation's broiler hatchery supply flock in 1963 which will create pressure for large production and low prices in early 1964.

In the past year some exploratory work was done in identifying and measuring the impact of factors that influence the level of poultry production. The effect of the new Common Market trade regulations against U.S. poultry, and analysis of surplus removal programs also received considerable attention. An article in the November 1962 issue of the Poultry and Egg Situation focused attention on year-to-year changes in poultry production and how they have been related to changes in profitability of production. The analysis employed a ratio of an index of prices received for broilers and turkeys to an index of production costs--a more refined measure of profitability than the product-feed ratios often used. The July issue featured an article on the cycles in broilers, which contributed to a better understanding of the forces generating recurring periods of overproduction and depressed prices in the broiler industry. This analysis provided the basis for a special press release issued by the Department on

July 1 urging the broiler industry to exercise caution in production planning. Long-run projections (5 years) were developed as part of a set of ERS projections for the economy as a whole.

E. Food Grains

1. Wheat. In the 1963-64 marketing year, the supply of wheat continued the decline of the last several years. This resulted from both special domestic programs to restrict production and intensified programming under Food for Peace and similar export programs. Carryover stocks are expected to be reduced at the end of the season for the third consecutive time. Prices in 1963-64 are expected to average near the price support loan rate as they have in recent years. However, towards the end of the current marketing year, the approaching 1964 crop and its much lower price support rate will have a pronounced effect on the wheat economy.

2. Rice. Supplies of rice continued heavy with large crops in both 1962 and 1963 offsetting smaller beginning stocks. As in the case of wheat, a high level of exports under Food for Peace programs have prevented any appreciable increase in carryover. Prices were above support in 1962-63 although they were somewhat below the high price received the previous year. In 1963-64 prices will probably continue to average above the support level.

3. Wheat and Rice. During the past year special attention was given to analysis of the wheat certificate program and alternatives to this program. The concept of the certificate program was a sharp departure from that of previous wheat programs and many new problems were encountered. As a result, a considerable amount of detailed analysis was necessary. Much of this work was included in the Department's bulletin Wheat, The Program for 1964--An Economic Analysis.

An article published in the April 1963 issue of the Wheat Situation dealt with protein premiums for wheat, and indicated that the variation in prices for different proteins was related to both the absolute and relative quantities available. Additional attention was given to rye in 1962-63. Situation and outlook reporting on this crop was expanded, with additional attention to the impact of world supply and demand on the rye situation in the United States. Several special analyses were prepared of existing or proposed Government programs or actions on food grains. Long-run projections (5 years) were developed as part of a set of ERS projections for the economy as a whole.

F. Feed

Carryover of feed grain was reduced 11 million tons in 1962-63, as acreage was down. This brought stocks down about 24 million tons in the past two years, following a steady increase during the preceding decade. About 25 million acres were diverted to soil conserving use

under the Feed Grain Programs in 1961 and 28 million acres in 1962. Also, domestic and export demand continued strong and total disappearance of feed grains rose to record levels in the 2 years. In 1963, participation in the Program was a little greater than in 1962, but farmers diverted a smaller percentage of the base acreage and total feed grain acreage rose about 3 percent. Although production is a little above last year, it probably will fall short of total utilization, and a further decline in stocks is in prospect for 1963-64.

Because of their importance in the feed supply-utilization balance, major emphasis in the past year has been on analysis of the Feed Grain Programs in operation, and proposed alternative programs. Results of studies of Programs for 1961, 1962, and 1963 have been summarized in the Feed Situation and other reports. Trends in feed grain production, consumption, prices, and price relationships were analyzed and results presented graphically in the November, 1962 issue of the Feed Situation. Feed grain prices proved low in recent years in relation to both livestock products and other inputs in livestock production. Low feed prices were accompanied by a substantial increase in the rate of feeding per animal unit from 1956 to 1960, then relative stability in the rate. During 1962-63 prices of feed grains rose in relation to livestock, and feeding ratios are generally less favorable than during the period 1958-61.

Special studies were prepared on longer term trends and seasonal variation in supplies, consumption, and prices of fish meal and alfalfa meal. These revealed upward trends in recent years in both supplies of and demand for these specialized feeds. They also showed pronounced seasonal variation in production and more moderate seasonal variation in prices. High-protein feeds continued to receive special attention as strong domestic and foreign demand pushed soybean prices to the highest level since 1953-54 despite increasing supplies. In connection with a set of ERS projections for major commodities, analyses were made of probable trends in feed grain supply, utilization, prices, and cash receipts (the next 5 years) under two types of programs and under "free market" conditions. The study indicates that under "free market" conditions prices would decline materially from present levels to move the larger feed grain production into consumption.

G. Fruits and Tree Nuts

1. Deciduous Fruits and Tree Nuts. The 1962 deciduous fruit crop was about 1 percent larger than in 1961 and 6 percent above the 1957-61 average. Mainly because of widespread unfavorable early-season weather, the 1963 crop is expected to total about 3 percent below 1962, although 3 percent above average. All major fruit crops are expected to be down from 1962 except apricots, grapes, nectarines, and plums.

Total production of edible tree nuts in 1962 was 36 percent below the heavy 1961 tonnage and 23 percent under the 1957-61 average, mainly due to

a light pecan crop. But with prospective sharp increases in pecans and almonds, the 1963 tree nut crop is expected to set a new record, 73 percent above last year and 33 percent above average.

Prices received by growers for 1962 crops were above 1961 for apples, grapes, and apricots, but below for peaches, pears, and cherries. Prices to growers for the 1963 crops generally should equal or exceed those of 1962.

In 1962 as in 1961, processing outlets took about 59 percent of deciduous fruit production. The 1962 canned pack was record large, but output of frozen fruit (excluding juice), and dried fruit was down. Although heavy packs of canned peaches, fruit cocktail, and applesauce are expected in 1963, the total canned pack probably will fall moderately below 1962. The pack of frozen fruit also is expected to be down, but dried fruit up.

Substantial increases in U.S. exports of canned peaches and fruit cocktail, from record packs, highlighted foreign trade in noncitrus fruits in 1962-63. Exports of canned pineapples also were up considerably, fresh pears up a little, and dried prunes not greatly different from 1961-62. But exports of apples (fresh) and raisins were down sharply.

A study of trends in pear production and use since 1935 disclosed:

(a) Increased concentration of production in the Pacific Coast States about offset by decreases in other States; (b) a marked shift in emphasis from fresh to processed, especially canning, in use of pears sold; and (c) a small decrease in total consumption of pears, but a larger decrease in per capita use.

New indexes of production and prices for noncitrus fruits, beginning 1935, were included in the June 1963 issue of the Fruit Situation. Similar indexes for edible tree nuts were published in the August issue. The new indexes (1957-59=100) replace old indexes (1935-39=100). Long-run projections (5 years) were developed for deciduous fruit as part of a set of ERS projections for the economy as a whole.

2. Citrus Fruits. The 1962-63 citrus crop (6.4 million tons), cut badly by winter freezes in all producing States, was about 25 percent smaller than the record 1961-62 crop and 18 percent below the 1956-60 average. As of late summer, prospects for U.S. 1963-64 crop oranges and grapefruit, especially in Florida, were less favorable than a year earlier due mainly to the freeze loss of limbs and trees. But prospects for lemons were better than a year ago.

High prices at all levels of sale for the reduced 1962-63 citrus crops have prevailed, especially since last December. Grower prices for Florida oranges and grapefruit and California lemons have averaged much above year-earlier levels. Prices for California oranges have fluctuated around high year-earlier levels.

The reduction in the 1962-63 citrus crop resulted in decreases in both fresh use and volume processed. Output of Florida frozen orange concentrate was less than half the 1961-62 record and the packs of the principal canned single-strength juices were down substantially. Packers' stocks during late summer were much below a year earlier, and prices at all levels of sale were up sharply. Reduced U.S. supplies of fresh and processed citrus at increased prices during 1962-63 have resulted in decreased exports of fresh oranges, grapefruit, and lemons and of most processed items. At the same time, there were increased imports of fresh oranges and concentrated lemon juice.

New indexes of production and prices of citrus fruit, beginning 1935, were included in the Fruit Situation, January 1963. The new indexes (1957-59=100) replace old indexes (1935-39=100). Long-run projections (5 years) were developed for citrus fruits as part of a set of ERS projections for the economy as a whole.

3. Deciduous and Citrus Fruits. An article, prepared in the Marketing Economics Division of Economic Research Service, evaluated survey data relating to fruit consumption under the food stamp program conducted in Detroit, Michigan, and rural Fayette County, Pennsylvania, in 1961. It showed that total consumption of all fruit and fruit juices (fresh fruit equivalent basis) by families using food coupons increased over previous consumption.

H. Vegetables, Including Potatoes

1. Potatoes. Overall supplies of potatoes were a little smaller in the fall and winter of 1962-63 than a year earlier, and prices to growers averaged substantially above the depressed levels of the previous fall and winter. In the spring of 1963, however, production was larger than in 1962, there was some bunching of marketing of old crop and new crop potatoes, and prices averaged below those of a year earlier. The late summer and fall crops, combined, are a little smaller than last year, although larger than needed, and prices in late summer are above year-earlier levels. About 3.3 million hundredweight of U.S. No. 2 or better grade potatoes from the 1962 crop were diverted to starch or livestock feed, under the USDA diversion program. Over 19 million hundredweight were diverted from the 1961 crop, when average prices to growers were extremely low.

During the past year the commodity specialist continued to serve as Economic Advisor to the National Potato Advisory Committee. Considerable time and effort were devoted to special appraisals of the influence of present and proposed potato programs on production, price and income. Long-run (5 year) projections of supply and utilization were made for potatoes as part of a set of ERS projections for the economy as a whole.

2. Vegetables. Total supplies of fresh vegetables, excluding melons, were moderately larger in the first half of 1963 than a year earlier. During the early weeks of 1963, prices of tender items, hard hit by winter freezes, were at high level. However, overall supplies of fresh items were larger in both winter and spring than in 1962, and prices to growers averaged lower from February through April. Summer production was down slightly from the previous year, and prices averaged higher.

Both canned and frozen vegetables were in generally heavy supply during the past year, with canned corn, tomatoes and tomato products extremely heavy. Because of an expected substantial cutback in the canned pack, and a moderate cutback in the frozen pack, supplies of both canned and frozen items probably will be moderately smaller in the 1963-64 season than in 1962-63. Prices both at f.o.b. and retail levels are likely to average a little above those of last season.

An article on the influence of the food stamp program on vegetable consumption was included in the January issue of the Vegetable Situation. The study, prepared in the Marketing Economics Division, disclosed that in both Detroit, Michigan, and rural Fayette County, Pennsylvania, families participating in the food stamp program increased their consumption of vegetables by $2\frac{1}{2}$ pounds per week from spring to January. This rise was more than the seasonal increase as measured by a control group of families. Increases of 15 cents in per capita weekly expenditures for vegetables in Detroit, and 9 cents in Fayette County were attributed largely to the new family purchasing power in the form of food coupons. Most of the increase in both quantity and value resulted from greater use of fresh vegetables. Frozen vegetable consumption also increased. Long-run projections (5 years) of production and consumption of vegetables were developed as part of a set of ERS projections for the economy as a whole.

Another special article dealt with long-time trends in production and consumption of dry edible beans. The study showed a generally rising trend in use of beans per person into the early 1940's. Partly because of a strong World War II and immediate postwar demand and heavy exports, a large part of which were lend-lease to our Allies, per capita consumption by the late 1940's had declined substantially, to less than 7 pounds. Consumption subsequently recovered somewhat, and in the last few years has averaged close to 8 pounds per person. Since the mid-1930's there has been a significant change in the relative importance of various kinds of beans. Actual output of lima beans declined and their relative importance fell sharply. Production of pintos, most important of the colored classes, is about triple that of the mid-1930's. Among white classes, production of Great Northern increased only about a fifth, but production of pea beans about doubled.

I. Cotton

Carryover of all kinds of cotton in the United States on August 1, 1963, was slightly above 11 million bales, 3 million more than on the previous August 1 and the most since 1957. The sharp increase in carryover reflected both a large crop and a decline in disappearance.

Mill consumption of cotton declined in 1962-63 because of increasing competition from manmade fibers and cotton textile imports, and uncertainty about possible new cotton legislation. U.S. cotton exports declined sharply as foreign free world cotton consumption declined and importing countries worked down stocks. U.S. cotton also encountered increasing competition from record production of both cotton and man-made fibers in foreign countries.

For the current crop year, both mill consumption and exports of cotton are expected to increase. An increase in exports is likely because of an expected pickup in foreign consumption and some decline in production abroad. However, 1963 production probably will exceed total disappearance resulting in some further buildup in U.S. stocks.

A comprehensive study to be released in September develops estimates of final domestic textile fiber consumption in the United States and identifies the major economic factors affecting variations in fiber consumption. The new estimates of consumption take into account shifts in U.S. exports and imports of textiles and the change in the composition of fibers used by domestic mills.

Another study, summarized in the April 1963 issue of the Cotton Situation, examined the post World War II changes in U.S. cotton production. In spite of a downward trend in acreage, production has been maintained because of the rapid increase in yields. There have been important shifts in the regional pattern of production. In 1962, about 20 percent of total U.S. production was in the Far West, up from about 10 percent in 1947. Production in the Southeast at around 13 percent in 1962 was down from 23 percent in 1947.

Also, during the past year, special analyses have been prepared for the Secretary's office on the probable effect of various programs on the price, supply, and consumption of cotton. Extensive data and analyses were provided to the Secretary of Agriculture's Advisory Committee on Cotton. Data on use of fibers by the military forces were revised and updated. A basic statistical handbook, including data for the 1925-62 period, was published. Long range projections (5 years) were made of production and utilization of cotton as part of a set of ERS projections for the economy as a whole.

J. Wool

The U.S. wool industry experienced a relatively good year in 1962, with prices to growers in the open market a little higher than for the larger 1961 output. Mill activity in the apparel wool sector, especially on the worsted system, was the most since 1956, while in the carpet wool sector it was only slightly less than a year earlier. Imports of apparel wool textile products and carpets and rugs were at record high levels. Wool products were further improved by technological advances that provided permanent creasing, wash-and-wear, mothproofing, and other properties to the inherent qualities of wool.

During the early months of 1963, wool prices were at the highest level since the fall of 1957. Prices declined moderately during mid-year as mill demand declined seasonally and inventories of finished wool products increased. U.S. shorn wool production continued to decline in 1963 due to fewer sheep numbers. U.S. mill use of apparel wools is expected to be lower in 1963 than a year earlier, but use of carpet wools likely will increase. Imports of apparel wool textile products continue at a record high level, but due to tariff increases, imports of carpets and rugs are somewhat less than a year earlier.

Many of the factors which were dominant in the world wool situation in the 1962-63 marketing season are also pertinent in the 1963-64 season. Wool carryover stocks in both producing and consuming countries were low. World consumption was relatively stable at record high levels as population and standards of living continue to increase. Offsetting these factors is the anticipated record high world production of wool and the increasing use of manmade fibers. World wool prices at the opening of sales for the 1963-64 marketing season in late August 1963 were moderately lower than those prevailing at the close of the 1962-63 season but above the opening levels of the previous season.

Analysis of the U.S. carpet wool industry during the last decade reveals many significant changes. The quantity, origin, and grade of U.S. imports of carpet wool varied substantially. The types of fibers used in surface constructions, the production and value of shipments, the width of broadloom carpets and rugs, and the types of carpets and rugs produced also changed considerably. In addition, there were increased promotional activities and technological advances, such as permanent mothproofing, which helped to increase use.

During late 1962 and early 1963, special studies were made relating to foreign trade in wool textile products and their impact on the U.S. wool industry in connection with the Interagency Textile Advisory Committee. Long-run projections (5 years) were developed for wool and wool products as part of a set of ERS projections for the economy

as a whole. Technical assistance was given to the U.S. delegation to the International Wool Study Group meeting in London. In addition, quarterly estimates of mill activity in the U.S. wool industry were furnished to the Commonwealth Economic Committee.

K. Tobacco

Carryover of flue-cured, the largest-volume tobacco, at the end of the 1962-63 marketing year was a tenth above a year earlier, and carryover of burley, the second largest kind, was up moderately. The 1963 crop of flue-cured is below last year's, but the burley crop is the largest on record. Total supplies for 1963-64, carryovers plus the 1963 crops of flue-cured and burley, are indicated to be 4 and 5 percent larger, respectively, than for 1962-63.

Consumption of cigarettes and cigars in 1963 is likely to exceed 1962, but declines are indicated for smoking tobacco and snuff; chewing tobacco may hold even. An important influence on cigarette consumption in 1964 and beyond will be the nature of the report of the Surgeon General's advisory committee on smoking and health, and further developments in this field.

Exports of unmanufactured tobacco in 1963 likely will show some gain over 1962, but from a longer-term standpoint increasing competition and trade restrictions of importing countries are unfavorable factors. Unless modified in forthcoming tariff negotiations, duty rates of the European Common Market will continue to be disadvantageous to U.S. leaf; the admission of Greece and prospective admission of Turkey as associate members also adversely affect our competitive position.

Contribution was made to an interagency report on tobacco quality factors. This report reviewed all aspects of the tobacco quality problem, particularly as it affects U.S. exports, and summarized the views and recommendations of producer and buyer groups as developed in public hearings.

As investigation of certain questionable disappearance statistics was undertaken, in order to improve the basis for determining consumption trends. Considerable time was spent on a detailed analysis of tobacco exports of the United States and its principal competitors. Work was done on 5-year projections of tobacco supplies, consumption, and exports under varying assumptions. A background statement on the economic importance of tobacco, and long-term statistics on consumption of tobacco products were furnished the Surgeon General's advisory committee on smoking and health.

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AREA NO. 2. SUPPLY, DEMAND AND PRICE OF AGRICULTURAL COMMODITIES

Problem. Producers, processors, distributors and consumers need better information on supplies, production and consumption of farm products, and the effect of these and other factors on the prices of these products. Similarly, Congress and the administrators of farm programs need to evaluate alternative proposals to modify existing price support and production control programs in terms of their impact on production, consumption and prices received by farmers.

The needs of all these groups require more accurate quantitative knowledge of the interrelationships among prices, production and consumption of farm products. Farmers need to know the prices they may expect from different levels of production in order to plan for maximum returns. Cooperatives, processors and distributors need adequate statistical information on price and consumption responses under different supply conditions to aid in distribution of agricultural supplies that lead to maximum returns to farmers. In addition, the strong and persistent tendency for farm production to exceed demand at favorable prices has resulted in a number of proposals to modify existing price support and production control programs. The development of new statistical methods and the application of existing methods for measuring the interrelationships among prices, production and consumption of farm products serve these needs by strengthening outlook and situation work, providing the basis for special analyses of alternative agricultural policies and assisting research workers in agricultural economics.

USDA PROGRAM

The program of basic research into the factors affecting prices, supply, and consumption of principal agricultural commodities has emphasized four broad research areas: (1) measurement of consumer response to price; (2) measurement of the effect of price and other factors on the production and supply of farm products; (3) measurement of the effect of supply and demand factors on farm prices and prices to consumers; and (4) improvement of statistical techniques for measuring economic relationships.

Changes in emphasis are made from time to time to utilize effectively the professional skills available and to adjust to work having the highest priority. The current emphasis is on a comprehensive analysis of the price-making forces in the feed-livestock economy, especially on factors affecting supply. As specific agricultural programs are usually proposed on a commodity basis, the current program is discussed in detail on a commodity basis though much of the actual research is carried on jointly for related commodity groups.

(a) Livestock and Meat. This work involves 1.5 professional man-years located in Washington, D.C. Research on livestock is part of a comprehensive

analysis of the price-making forces in the feed-livestock economy. This study gives special attention to the quantitative measures that show what happens to the production of each commodity within the feed-livestock sector following changes in price of one or more of the commodities. The study includes analyses for the United States as a whole and for regions to measure differences in price response and to allow for the important farm and non-farm alternatives available in each region. The present emphasis is on economic factors that affect the supply and price of beef cattle and the demand for feeder cattle and the interrelations among these factors. Results from the beef, hog and feed grain studies along with analyses for milk, eggs, and broilers will be incorporated into an overall analysis of the feed-livestock economy.

(b) Feed Grains and Byproduct Feeds. This work involves 0.5 professional man-year located in Washington, D. C. The emphasis in this area is on development of data and statistical analyses which can be integrated into the larger analysis of the feed-livestock economy. The study includes statistical measures of the factors that affect both the supply and demand for feed grains and byproduct feeds. Special emphasis is given to the interrelationships of prices and the substitution possibilities in the utilization of feed grains among the different kinds of livestock. Analyses are also developed which will measure the influence of the factors affecting the production and supply of feed grains. Consideration is given to the effect of changes in the price of one feed on the production of not only that feed grain but also other feed grains competing for the same farm resources.

(c) Cotton and Other Fibers. This work involves 1.5 professional man-years located in Washington, D. C. The purpose of this research program is (1) to measure the influence of economic factors that affect consumption of major textile fibers and (2) to measure the economic factors that affect the price, supply, and utilization of cotton and cotton products. The major effort during the past few years has been on research relating to consumption of fibers. This study provided analyses which make it possible to forecast quantities of cotton, wool, and fiber consumption. The present research emphasis is on analysis of price, supply, and utilization of cotton. Over the years, one of the major outlets for raw cotton has been exports. The study will examine factors causing variation in exports and will develop quantitative relations which can be used for forecasting exports of raw cotton. These, along with the developed equations for forecasting domestic consumption, will improve forecasts of the total utilization of cotton.

(d) Deciduous Fruits. This work involves 0.5 professional man-year located in Washington, D. C. The current emphasis is on demand and price analysis for peaches. The study includes analyses which measure statistically the influence on prices of available supplies of different types of peaches, consumer income, supplies of competing products, and the carryover stocks from the previous season. An attempt is being made to find statistical techniques which allow for the joint interaction among prices and different end uses such as fresh market, canning, drying, and freezing. Because of

the substantial changes in utilization trends in recent years, these interactions are difficult to measure.

(e) Citrus. This work involves 0.5 professional man-year located in Washington, D. C. The research is aimed at determining the price-consumption responses for fresh citrus and various citrus products, the competitive relationships among citrus products, the competitive relations among grades, and the relationship between citrus and noncitrus (including synthetic) products. The need for this information to aid in making marketing decisions has increased because of recent sharp reductions of citrus supplies.

(f) Vegetables. This work involves 0.5 professional man-year located in Washington, D. C. The research is part of a comprehensive program of work designed to identify and measure factors influencing the supply of, demand for, prices, and utilization of fresh and processed vegetables, including dry edible beans and peas. Emphasis the past year has been on a study of economic aspects of the dry edible bean industry, including trends in consumption, shifts in patterns of production by classes, production response to price, and influence of government programs on consumption.

(g) Potatoes. This work involves 0.5 professional man-year located in Washington, D. C., making separate analyses for the total U.S. crop, the various seasonal crops, and the major producing areas. These analyses measure the effect of price and other factors on acreage and production of potatoes; the effect of supplies and other factors on price and utilization of potatoes; the effect of price, income and other factors on consumption; and the effect of price and other factors on storage demand and level of storage.

(h) Tobacco. This work involves 0.5 professional man-year located in Washington, D. C. Current research effort relates to (1) economic factors affecting supply, price, and utilization of tobacco and tobacco products; and (2) economic effects of technological changes on supply, demand, utilization, and price of leaf tobacco. Under the first area of work, analyses which utilize both time series and cross section data are developed to measure the influence of several factors affecting consumption of cigarettes, cigars, and the other tobacco products. Analyses relating to factors affecting prices of the major kinds of leaf tobacco, and to exports and seasonality are undertaken. Under the second area of work, information and analyses are developed for evaluating the effects of consumption trends and of recent technological changes in tobacco manufacturing on supply, demand, and price of leaf tobacco. Recent changes in quantity and character of leaf demanded and utilized by manufacturers and in the traditional structure of market prices are analyzed from the standpoint of immediate and long-range effects on growers, export markets, and tobacco programs. The research program also includes modification and use of results from both areas of work in program appraisals involving effects of alternative price support levels and marketing controls.

(i) Improvement of Statistical Techniques. This work involves 1.5 professional man-years located in Washington, D. C. In the past decade there have been many changes in econometric methods used in price, supply, and consumption analysis. The research program consists of adapting the latest known econometric techniques and, where necessary, developing new techniques which permit more efficient ways of quantifying interrelationships among prices, supply, and consumption. The effectiveness of statistical relations for forecasting economic behavior may depend on the method of statistical estimation used in quantifying these relations. Special analyses are made to test the relative merits of obtaining forecasts for different methods of statistical estimation.

Another important way of improving techniques is the adaptation of statistical methods and econometric procedures to the electronic data processing facilities. This involves continual evaluation and carrying out of feasibility studies for application of automatic data processing systems to computational problems. The latest programming methods are searched out and reviewed to determine where new methods or programs can be used or where existing programs can be modified.

REPORT OF PROGRESS FOR USDA AND COOPERATIVE PROGRAMS

A. Livestock and Meat

Work on demand for meats included an analysis of the experience in consumption of livestock and livestock products during the last decade as to clues for underlying trends that reflected changes in tastes and preferences. The analysis showed that the demand for beef and broilers shows the most promise in the postwar period. It was found that after allowing for the effects of changes in relative prices and for changes in consumer income, the net increase in per capita demand for beef and broilers was about 1 percent per year. On the other hand the trend in per capita demand for pork, exclusive of changes arising from price and income changes, was downward at a rate of 1 percent per year.

A technical bulletin was issued in December 1962 which describes the major economic relationships that affect the supply and price of hogs. This bulletin won first prize in the American Farm Economic Association Awards for published research competition. The bulletin contains an explanation of the factors involved in the cyclical behavior of production and prices of hogs, and measures the effect of various factors such as the prices of feed, beef and poultry, and consumer income on the hog economy. Results of this study were reported in detail in last year's report.

Work on price and supply of beef cattle during the current reporting period was centered on an analysis of economic factors that influence the inventory accumulation and depletion of beef cattle. The inventory of beef cattle is depicted as being made up of the number of (1) beef cows on farms (2) beef cattle on farms 1 to 2 years old (3) beef calves on farms and (4) beef bulls on farms. Supply and demand relations are being formulated for each

component part and preliminary statistical results have been obtained for some of the relationships. Research during the year has been mostly on items (1) and (2). The demand for beef cows for slaughter has been related to (1) price of utility slaughter cows, (2) price of heifers and (3) price of slaughter hogs. The supply of beef cows for slaughter has been related to (1) price of utility slaughter cows, (2) price of slaughter calves, (3) number of beef heifers brought into beef herd, and (4) range conditions. The demand for heifers to be brought into herd was related to (1) price of heifers, (2) the number of beef cows slaughtered, and (3) price of calves. On the other hand the supply of heifers to be brought into beef herds was depicted as depending on (1) price of heifers, (2) beef-corn ratio, and (3) the number of calves on farms the previous year.

As part of the cattle study, regional locational patterns of different classes of cattle have been made. The individual regional influences of the changing location patterns are being traced and related to the United States as a whole.

B. Feed Grains and Byproduct Feeds

Work in this area was limited to demand and supply analysis of soybean meal. In the analysis, the quantity of soybean meal demanded for feeding purposes was explained by (1) the price of soybean meal, (2) number of high protein feed consuming animal units, and (3) quantity of cottonseed meal fed. Preliminary results indicated that one percent increase in price results in a 0.7 percent decrease in the quantity demanded for feed. The production of soybean meal is a function of the quantity of soybeans processed. The quantity of soybeans processed was explained by (1) the value of soybean meal and oil relative to the value of an equivalent quantity of soybeans, and (2) the production of soybeans.

C. Cotton

A technical bulletin released in September 1963 develops estimates of final domestic textile fiber consumption in the United States and measures the effect of the major economic factors on variations in consumption. Many of the results were presented during the last reporting period. The new estimates of consumption take into account shifts in the pattern of U. S. foreign trade in textiles, and shifts in the mix of fibers used in the manufacture of textiles to include a greater percentage of synthetic fibers which do not displace cotton and wool on a pound-for-pound basis, and more nearly represent the cotton equivalent volume of fiber used by domestic consumers than the previously used indicator of consumption. The single economic factor found to have the most influence on fiber consumption was level of income. The statistical analyses from this study will make possible better forecasts of consumption of cotton, wool and other fibers.

With the completion of the study of factors affecting the demand for textile fibers in the United States, research has been concentrated on the price and utilization of cotton and cotton textiles, with separate

statistical analyses to isolate the important factors in all major outlets. Preliminary results indicate that the level of United States prices in foreign markets and changes in foreign production and consumption of cotton and synthetic fibers affect United States cotton exports.

Analyses also are underway to determine the role of cotton prices and other factors in determining changes in cotton acreage and production for major foreign producing countries. Preliminary results indicate that total production of cotton in these countries is influenced by the level of world cotton prices.

Consumption abroad has risen in response to rising standards of living and increases in population. Changes in world cotton prices were found to have a significant effect on consumption. Analyses are underway to determine the effect of various factors on cotton consumption in major individual foreign consuming countries.

Exploratory analyses have been made of the demand for groups of fabrics in the United States such as print cloth, sheeting and narrow fabrics to gain insight into the domestic utilization of cotton.

Estimates of fiber used by the military services have been revised and updated. These estimates are to be published within a few months. Also, conversion factors for estimating the raw fiber content of U. S. exports and imports of textiles are being revised. This revision was made necessary by changes in Bureau of the Census classifications of exports and imports of textiles. Classifications were changed in connection with the International Textile Agreement.

D. Deciduous Fruit

1. Peaches. Work during the current reporting period included additional analysis on factors affecting grower prices for Clingstone peaches for canning during the postwar years. A number of formulations, including different measures of packer carryover stocks, production or expected production, in addition to income, as economic variables affecting prices were tried. The statistical results were not rewarding. Only a little more than half of the Clingstone price variation could be explained by these factors when allowance was made for changes in the price level and population growth.

2. Apples. A summary of apple demand and price analyses published from 1945 through 1960 was made as part of a comprehensive study on what is known about apple production and marketing to be released in October. This report includes work done outside as well as work within the Department. The contents of this report were summarized in the previous reporting period. Because of the growing importance of canning in recent years, the study recommends the need of more studies relating to demand interrelationships for processed products and fresh market. In addition the study found very little research on the long-term prospects for demand and supply for apples.

E. Citrus and Subtropical Fruits

A study of price differences of Florida oranges sold for fresh market due to differences in quality in relation to quantities shipped was made for postwar years. Various formulations were tried, including comparisons between Indian River and Interior oranges and between No. 1 and No. 2 grades. Indian River orange prices were higher than Interior prices by a fairly constant amount which did not seem to be related to quantities shipped fresh from each area. Very small shipments of No. 2 oranges during the postwar period, particularly in the last 10 years, made it difficult to determine a meaningful relationship between No. 1 and No. 2 prices and quantities. In most years No. 2 oranges were shipped only at the end of the season, and in a few years during the first couple weeks of the season, when all fresh oranges prices were higher than in the rest of the season. In addition, the proportion of total fresh shipments contributed by the different areas and types of oranges differed considerably from year to year. In general, Valencia oranges sell for more than Early and Midseason oranges, and Indian River fruit for more than Interior fruit at any given time during the season. Even though several adjustments were made in the data to compensate for these difficulties, the results were inconclusive.

F. Vegetables

A study of economic trends and Government programs for dry beans is nearing completion. It portrays a rapidly changing industry during the past 25 to 30 years. Although number of farms producing dry beans and total acreage declined substantially, advancing technology and improved cultural practices boosted yields sharply, and total production increased about 50 percent. Changes in demand, coupled with changes in acreage, and yield resulted in significant changes in the pattern of production. Colored beans as a group showed the sharpest gain, increasing from about a fourth of the total in 1933-36 to about 40 percent of the total in 1957-60. Actual output of white beans also increased over the period, but the group lost in relative importance from 50 to 44 percent of the national total. Lima beans declined both in actual production and relative importance.

Early in World War II support prices at 90 percent of parity were initiated for dry edible beans. Because of the strong demand both at home and abroad, virtually no beans were delivered under the support program. In the postwar years supports have varied from 60 to 90 percent of parity. Deliveries to the Commodity Credit Corporation were very heavy in 1948 (about 5 million hundredweight) and again in 1949 (about 6 million hundredweight). Deliveries from subsequent crops have been much lighter, averaging 1.6 million hundredweight in the years 1950-61, about 9 percent of total production. Of all beans delivered to CCC about 25 percent have been sold back into domestic markets, 15 percent disposed of through domestic donations programs, and 60 percent have been exported.

G. Potatoes

Several previously completed demand analyses as part of a technical bulletin were updated and others varied to take into account changes in recent years. In addition, a separate study was made of the impact on total consumption of the rapid increase in consumption of processed potato products. In the last six years, use of processed potato products increased 14 pounds per person, more than enough to offset the use of fresh potatoes which declined 4.8 pounds. The increase is greater than could normally be attributable to changes in relative prices and income, indicating an increasing preference for processed potato products. Market acceptance for processed potato products reflects the increasing preference by consumers for convenience type foods. Separate demands exist for potatoes used for food, for feed and for starch. Results from statistical analyses indicate that the price elasticities of demand were around -0.05 to -0.10 for food use, around -0.25 for livestock feed, and about -1.2 for starch.

H. Tobacco

Continued analysis was made of grade prices of cigarette tobaccos, and the effect of grade price changes on exports to individual markets.

Trends in utilization of tobacco as affected by recent technological changes were analyzed as to their impact on growers, and findings were included in situation and outlook reports. In 1962, use of tobacco for cigarettes is estimated at 1,218 million pounds (unstemmed processing weight)--virtually unchanged from 1961. Preliminary estimates indicate that the use of flue-cured declined a little and use of burley showed an offsetting increase. Use of imported tobacco, which showed considerable gain from 1957 to 1961, leveled off in 1962. While use of tobacco remained about the same, manufacture of cigarettes rose 1.4 percent from 1961 to 1962. The failure of tobacco usage to increase proportionately is in keeping with tendencies in recent years, and is due to increased use of sheet tobacco and stems and a further gain in filter tip cigarettes, which require less tobacco than plain tip cigarettes.

A review of present acreage controls and alternative methods of supply adjustment was prepared and presented before the National Tobacco Industry Advisory Committee. Contributions were made to analyses of various proposals and recommendations of this Committee.

Considerable time was spent in analyzing U. S. tobacco exports, with special reference to the competitive position of U. S. tobacco.

I. Improvement of Statistical Techniques

Product price uncertainty plays an important part in estimating supply relations of agricultural commodities, since inputs in agricultural production are committed long before the final product is marketable. Two alternative hypotheses about firms' behavior in the face of product price

uncertainty on the specification and estimation of supply functions were investigated.

One hypothesis assumed that firms anticipate product price to fall within certain upper and lower bounds and minimize maximum loss subject to this condition. A second hypothesis assumed differences in price expectations among firms. A supply model was specified assuming that firms maximize expected profit with price expectations differing from firm to firm.

Both hypotheses incorporate a price uncertainty variable such as a variance or coefficient of variation of price expectations in the supply function. Investigation of the theoretical properties of these functions shows that this variable is not likely to be important for empirical analysis unless, (1) marginal cost is non-linear in the relevant range, and (2) the variable used as a measure of uncertainty varies considerably. Actual analyses using annual cotton, wheat and corn price and acreage data essentially confirmed the same conclusions. This suggests that the uncertainty supply models could be useful in analyzing the effect of policy measures which drastically change uncertainty conditions.

Assistance was given to special study on demand of farm products. This included consultation on the study, and the providing of data, and computational and graphic services. This study so far has related a number of regressions for individual products relating factors affecting demand at retail and factors affecting the marketing margin. The results from the retail demand relations and the marketing margin relations are used to derive demand relations at the farm level which can be used to explain farm prices.

Another area of work included participation in the construction of a matrix of final demands for use in an input-output study for the agriculture sector conducted by ERS. The work involved problems of methodology in formulating the demand matrix and reconciling these problems with the limited data available.

One of the activities in price, supply and consumption analyses is the adaptation of statistical and computational methods to electronic data processing equipment. Because of SRS plans to convert their data processing installation from a card-oriented system (IBM 650) to a magnetic tape-oriented system (IBM 1401-7072), great emphasis has been placed on the retraining of personnel and "re-tooling" with new computer programs in advance of machine delivery.

Retraining of both professional and clerical personnel has proceeded with courses of instruction that have been given at the IBM Education Center as well as in USDA. These courses covered basic computer concepts as well as programming instruction. In addition a large number of Division personnel attended a Dataplotter Workshop in which SRS personnel outlined the Dataplotter's features and capabilities as well as reviewed procedures for developing plotting specifications and preparing data for machine plotting.

Reprogramming will be necessary for the processing of standard statistical and econometric techniques. Wherever possible, computer programs for this type of computation are secured from the manufacturer's library or from other data processing installations. Generally such programs are used either directly or otherwise modified and adapted to our own processing needs. This practice allows for more efficient use of limited manpower and funds for ADP.

One program of this type is a Stepwise Multiple Regression Analysis program. It was taken from the manufacturer's program library and adapted for our use. The program can accept as many as 80 variables and 9,999 observations on input, but only 72 variables will be used in the simple correlation matrix. Input variables, up to a maximum of 20, can be transformed. These transformations will change the sequence of variables; compute the power, sum, product, ratio, or difference of two variables; and convert to logarithms and exponentials. Variables either in the actual or transformed form can be further manipulated to allow for first differences or lagged values.

Generally, the stepwise procedure selects variables for the equation according to the ones that can cause the greatest reduction in variance on a single iteration. Variables are entered and retained only if they meet a prescribed significance test. The first phase computes sums, sums of squares and cross-products, means, standard deviations, and simple correlations for as many as 72 variables. A second phase solves for regression equations, either directly or stepwise, from any system of equations formed as a subset of the 72 variables to a maximum of 56 variables. Data computed are regression coefficients, standard errors of the equation and of the regression coefficients, normalized regression coefficients (betas), multiple regression coefficients, multiple coefficients of determination, predicted and residual values, and the statistic for testing serial correlation.

Previous machine procedures required manual handling of card decks between computational phases. However, since the new program is for a large tape system, all data are placed on magnetic tape and subsequent computations are made with one pass of the tape.

Another recent addition to our program library is the BLS Seasonal Factor Method for the IBM 1401. This was developed at the Bureau of Labor Statistics and is a method for developing seasonal factors for economic time series. This procedure was introduced originally in 1960 for the IBM 650 but has been modified for the newer machine. The new program is being studied now and, after certain operational tests, will become part of our library.

The Division representative for automatic data processing has participated in discussion programs in both ERS and SRS that stressed the need for better communication between the Data Processing Branch of SRS and user organizations. The topic at a discussion series held in SRS was "Views of an Automatic Data Processing Center as a Service Organization." ESA emphasis

was placed on the manner in which small problems are processed, particularly as this relates to the timeliness and quality of the computing job. Another recent panel discussion for ERS Divisions, "Better Communication with ADP" presented the processing experiences of ERS users. The ESA representative concentrated on procedures necessary for solving multiple regression problems.

An article entitled "A Model for Selecting Minimum Cost Combinations of Automatic Data Processing Equipment" was prepared for Agricultural Economics Research. It presents a decision model which enables one to choose, from among the alternatives available, the combination of computing equipment that minimizes computing costs for a given amount and composition of work. The model together with other pertinent criteria, can provide a basis for more systematically selecting a machine complex for a data processing installation. It can be useful also in deciding whether to change a machine complex as a result of changes in the organization's workload or the availability of improved equipment. The paper outlines underlying factors and data that must be considered in this development and illustrates the format for the initial basis of a linear programming model.

PUBLICATIONS REPORTING RESULTS OF USDA AND COOPERATIVE RESEARCH

Livestock and Meat

Harlow, Arthur A. December 1962. Factors affecting the price and supply of hogs. U.S. Dept. Agr. Tech. Bull. 1274.

Cotton and Other Fibers

Donald, James R., Lowenstein, Frank, and Simon, Martin S. September 1963. The demand for textile fibers in the United States. U.S. Dept. Agr. Tech. Bull.

Deciduous Fruit

Burns, Alfred J., Rockwell, George R., Jr., and Thigpen, Elton. October 1963. Apple marketing--a review of economic research, 1945-60. ERS 140.

Potatoes

Hee, Olman. May 1963. Factors affecting consumption of processed potato products. Paper before the Annual Meeting of the Virginia Academy of Science, Roanoke, Virginia.

Improvement of Statistical Techniques

Reutlinger, Shlomo., and Wallace, T. D. March 1963. A minimax supply function. Paper presented at the Southern Farm Management Research Conference Methodology Workshop, New Orleans, Louisiana.

Reutlinger, Shlomo. August 1963. Alternative uncertainty models for predicting supply response. Paper presented at annual meeting of American Farm Economic Association, Minneapolis, Minnesota.

Abel, Martin E., and Weingarten, Hyman. October 1963. A model for selecting minimum cost combinations of automatic data processing equipment. Agr. Econ. Research.

AREA NO. 3. FARM INCOME

Problem. Timely and accurate statistical information and analyses on the farm income situation and outlook are essential to farmers, legislators, administrators, and others in developing production and marketing plans and in evaluating the needs for and operations of public programs for agriculture. Changes in the structure of commercial agriculture require the development of new methods and sources of data in order to maintain and improve the representativeness of farm income measures. Quantitative measures of the interrelationships between agriculture and other sectors of the economy are needed for assessing the impact of changes in the farm sector on related nonfarm sectors, as well as the impact of changes in non-farm sectors on farming. Centralization and maintenance of a large number of economic time series pertaining to agriculture is required to permit prompt and accurate handling of a continuous flow of a wide diversity of requests for economic data on agriculture.

USDA PROGRAM

The Department has a continuing long-term program of economic and statistical research which includes the development of new methods and sources of data and the regular preparation of current estimates and projections. This work is located in Washington, D.C. The Federal program of research in this area involves 13 professional man-years. This is divided as follows:

(a) Work on current estimates of farm income and expenditures uses economic and statistical analysis to fulfill three main objectives: (1) The development, preparation and interpretation of monthly, quarterly, and annual estimates of farm income and expenses for the Nation as a whole and for the several regions and States; (2) the analysis and interpretation of economic forces on and off the farm producing changes in farm income and expenses; and (3) the forecasting of future movements in these economic forces, leading to projections of prospective levels of farm income and expenses. In addition to the basic series developed under this project, miscellaneous farm series of a related nature are also developed and published. Analyses are also made of relationships between farm income and marketings, prices, expenditures, and nonfarm incomes. Shifts in the components of farm income and expenses are appraised and studies are made of short- and long-time trends.

The work is carried on in Washington, D.C. and close cooperation is maintained with units of the Statistical Reporting Service and with the National Income Division of the Department of Commerce. Cooperation is also maintained with other agencies of the Department, other Federal agencies, and certain private trade organizations.

The Federal effort devoted to this area of economic research totaled 6.0 professional man-years at the beginning of the reporting period and 5.0 professional man-years at the end.

(b) Work in the field of research and methods relating to farm income is a continuing long-time project involving 4 professional man-years of research effort directed toward the following objectives: (1) Development of methods and sources of data for improving estimates of farm income and expenditures; (2) development of estimates of farm income by economic class of farm; (3) measurement and analysis of relationships between incomes of farm and nonfarm population; and (4) measurement and analysis of relationships among agriculture and other sectors of the economy. Most of this research is done at departmental headquarters in Washington. Some work is also carried on in cooperation with other federal agencies within and outside the Department. A cooperative program of research relating to the utilization of input-output methods of analysis for developing long-term growth projections is in progress under a transfer of funds agreement with the U.S. Department of Labor. Another cooperative project involving the conduct of a Consumer's Expenditure Survey was also undertaken with the U.S. Department of Labor during the past year, although no transfers of funds were involved.

(c) Work on analysis of the impact of alternative farm programs on agriculture and the general economy involves the development of meaningful estimates and projections of the probable effects of proposed alternative farm programs on farm income and on the general economy. This work involves cooperation with other Branches of the Division, other Divisions of ERS and other agencies of the Department. One professional man-year is devoted to this field of research.

(d) Centralization and maintenance of economic data pertaining to agriculture involved 2.0 professional man-years during the reporting period. Prompt and accurate handling of a continuous flow of widely divergent requests for economic data is the objective of this work. Farmers, administrators, legislators and the general public require accurate and meaningful data and analyses of the economic situation in agriculture.

REPORT OF PROGRESS FOR USDA AND COOPERATIVE PROGRAMS

A. Current estimates of farm income and expenditures.

Farmers' realized net income in the first half of 1963 was estimated at an annual rate, seasonally adjusted, of about \$12 1/3 billion, about 3 percent less than in the first half of 1962. The rate of income in the first half of 1963 maintained the average income per farm at about the same level as a year earlier; the decline in number of farms over the past year was at about the same rate as the decline in aggregate income.

In 1962, realized gross farm income was \$1.2 billion higher than in 1961 and \$2.9 billion higher than in 1960. Cash receipts from farm marketings

were estimated at \$35.9 billion in 1962 compared with \$34.0 billion in 1960. Farm production expenses also rose over the past two years, and the estimated total of \$28.2 billion for 1962 was \$1.1 billion more than a year earlier and \$2 billion more than two years earlier. With realized gross farm income up more than expenses over the past two years, realized net farm income in 1962 was estimated at \$12.6 billion compared with \$12.5 billion in 1961 and \$11.7 billion in 1960.

Farm operators' realized net income per farm was estimated at a record high of \$3,414 in 1962--up about 4.5 percent from 1961. State estimates for 1962 indicated that realized net farm income per farm rose in 27 States and dropped in 21 States. Realized net income per farm was indicated higher than a year earlier in 1962 in all major regions of the country.

The per capita personal income of the farm population from all sources was estimated at a record high of \$1,436 in 1962. Of this total, \$940 came from farm sources and \$496 from nonfarm sources. Despite the record high per capita personal income of the farm population in 1962, it was only 59 percent of the per capita income from all sources of the nonfarm population.

Progress was made in revising farm income estimates by States and by accounts back to 1950. These revisions will incorporate data from the 1959 Census of Agriculture as well as other information not available or usable previously. The data will be supplied to the Department of Commerce to be incorporated into a general revision of the National Income Accounts.

Programming of receipts data through automatic data processing was continued and efforts to convert the processing of gross farm income estimates from the 650 computer to the higher speed 7074 machine were initiated. This, when completed, will facilitate output of the gross farm income estimates.

Staff members participated in the development of the income and production expense sections of the questionnaire for the 1964 Census of Agriculture.

Work in cooperation with the Internal Revenue Service was initiated to examine the feasibility of using data from IRS tabulations as a means of improving the Department's estimates of farm income. These IRS data offer possibilities of providing a basis for improving estimates of some farm production expenses as well as a basis for furthering the development of estimates of size distributions of farm income.

The Project Leader of ESA-3 and the Farm Income Research and Methods Section Project Leader are participating as members of an Agriculture Subcommittee of the Wealth Inventory Planning Study to explore the problems and possibilities of a benchmark inventory of the Nation's wealth with special application to agriculture.

Farm income data are published in four issues of The Farm Income Situation and the supplement to the July issue each year.

B. Research and methods relating to farm income.

During the past several years, considerable progress has been made in several important areas of research relating to maintaining and improving the representativeness and accuracy of farm income measures. Several new measures of farm income were developed for purposes of revealing important aspects of the farm income problems of farmers.

1. Development of methods and sources of data for improving estimates of farm income and expenditures. During the past two years, in cooperation with the Bureau of Labor Statistics, the Statistical Reporting Service, and the Consumer and Food Economics Research Division, ARS, the Farm Income Branch participated in a Consumer's Expenditure Survey for 1961. This included: (a) The development of questionnaires suitable for the farm households segment of the sample; (b) training enumerators for the field work; (c) editing selected sections of the questionnaires; and (d) developing tabulation plans.

Information obtained from the survey is expected to provide up-to-date benchmark data for income estimates, by economic class and by source, and control totals for various categories of production expenses. Data from this survey have been coded and put on tapes and tabulations should be available within the next year.

An experimental survey of farmers' savings was conducted under a memorandum of agreement with the Farm Production Economics Division and the University of Illinois. This was an effort to test the accuracy of financial data obtained from farmers by various survey methods, with the results revealing techniques and questions suitable for use in nationwide surveys. A report to the Department by the University of Illinois on the results of the survey concluded that "on the average, farm holdings appear to be reported with high reliability, although individual discrepancies are substantial and frequent. However, many of these discrepancies may reflect errors in the institutional data rather than errors in the interview reports. Indeed, for some farm assets the interview reports appear to be more complete than the institutional data."

2. Development of estimates of farm income by economic class of farm. Income measures were developed to more closely depict the income positions of various groups of farms within agriculture. In cooperation with the Bureau of the Census, data on the off-farm income of farm operator families, by economic class, were obtained from a Sample Survey of Agriculture for 1960. Estimates of total income of farm operator families by economic classes were developed on the basis of these data, data from the 1959 Census of Agriculture, and regularly published income series of the Farm Income Branch. The estimates were included in Food and Agriculture--A Program for the 1960's, in which the Department's major programs and policies were outlined.

Major conclusions drawn from such new measures were: (1) Income sources and income problems on nearly 1.5 million farms with sales of \$5,000 or more are substantially different from those on farms with sales below \$5,000; and (2) even though levels of living on some of these larger farms are relatively good, earnings are generally not comparable to nonfarm earnings.

In connection with the research on parity income reported below, estimates of gross and net farm income and production expenses by major economic class of farm were developed for 1961.

An experiment designed to explore the possibility of obtaining information on farms and farm characteristics by economic class of farms in the June Enumerative Survey is underway. This experiment involves cooperation with the Farm Production Economics Division and the Statistical Reporting Service.

3. Measurement and analysis of relationships between farm and nonfarm income. A paper entitled "Farm-Nonfarm Income Comparisons" was presented at the winter meeting of the American Farm Economic Association with the Allied Social Science Associations in December 1962. The paper discussed the data and methods used in the preparation of the farm income estimates, described the farm-nonfarm income comparisons which can be made with data now available, and called attention to new data that should be developed to permit additional comparisons which would increase understanding of the farm-nonfarm income situation.

4. Measurement and analysis of relationships between agriculture and other segments of the economy. Work on the development of preliminary estimates of input-output transactions accounts for 18 agricultural sectors for the year 1958 is completed. The preparation of these accounts involved the processing of thousands of estimates from literally hundreds of different sources. Work on reconciliation of agricultural sector accounts with those for nonagricultural sectors developed by the National Economic Division of the Department of Commerce is now underway and should be completed within six months.

Completion at the end of calendar year 1963 of the entire input-output transactions matrix for the entire economy will permit up-to-date analyses of quantitative interrelationships among sectors.

With the computation of the general inverse of the transactions matrix, it will be possible to measure both the direct and indirect effects upon individual agricultural sectors of final deliveries by every other sector in the economy. It should serve as a useful analytical tool for measuring resource requirement implications of program adjustments in specific commodity areas.

A study of Agriculture in 1970, covering projections of demand and selected characteristics of the structure of American agriculture was completed for the Interagency Committee on Economic Growth and Employment Opportunities as part of a broader project covering the entire economy. The general objective of the project for the entire economy is to explore the feasibility of developing a coordinated systematic analytical framework of economic projections, under alternative assumptions, which would be useful to the Federal Government in developing and implementing national economic policy in the areas which require a long range view of future patterns of growth in the economy.

C. Analysis of the impact of alternative farm programs on agriculture and the general economy.

1. Agriculture and Economic Growth. The project leader served as a member of a study group established by the Director of Agricultural Economics to investigate agriculture's contributions to economic growth. Under the leadership of the Division Director, the project leader prepared materials relating to theories of growth and to agriculture's early contributions to growth. He also developed data on farm gross product and nonfarm gross product and cooperated generally in preparing the written report.

2. A new concept of income parity is being explored. This concept would define parity income as the farm income that would yield returns to the capital and labor engaged in agriculture equal to those earned by similar resources in the nonfarm segment of the economy. Primary attention was directed to commercial farms for which the value of farm products sold was \$5,000 or more. The question was approached on the basis of aggregative income for all farms combined. A paper reporting this research entitled, "Income Parity Standards for Agriculture," was published in the October 1962 issue of Agricultural Economics Research. The paper indicated that an increase of 9 percent in gross farm income would have been required to give farms with a value of sales of \$5,000 or more an income equivalent to the parity income standard as measured in this research.

D. Centralization and maintenance of economic data pertaining to agriculture.

Agricultural legislation and increased emphasis on the importance of rural America to the Nation's economic life added notably to requests for agricultural information and analyses from the general public, officials of the Department, offices of Congressmen and congressional committees.

The bulk of the work in the Statistical Services Section is concerned with assembling, compiling and disseminating agricultural data. The Section continued to prepare and circulate a looseleaf statistical handbook providing up-to-the-minute statistical information to policy makers in the Department and other high-ranking individuals. A series of tables on foreign trade in agricultural products was added to the handbook.

The decision to issue the 1964 Chartbook as two separate publications has made additional work. Expanded use of the Dataplotter, while lowering overall costs of graphic presentation, has meant increased responsibility for some of the personnel.

Other major contributions of statistical data were made to the Economic Report of the President, the Statistical Abstract of the U.S., the World Almanac, the Statesman Yearbook, the (NICB) Economic Almanac, and the Bulletin Almanac and Yearbook for 1963. Increased emphasis on developing a better public understanding of the significance of agriculture to non-agricultural industries and the consumer increased the number of requests for data from the Department's Office of Information. Too, checking and verifying basic economic data (as per Secretary's Memorandum No. 1476) for this and other offices has resulted in greater demands on the time of the project leader and the personnel of the Section.

Publications issued or revised include Upswing in Rural America, Background on Our Nation's Agriculture, and the Fact Book of U.S. Agriculture. During the year, the correspondence work of the Section was considerably lessened by the transfer to OMS of that part of the work concerned primarily with requests that could be answered by appropriate publications. Partially offsetting was a considerable number of inquiries from cattlemen and others occasioned by the November-March decline in fed cattle prices.

The project leader continued to participate in the SRS lockup for the monthly Price Report, and provided a seasonal index for adjusting egg prices in the July issue of that publication.

PUBLICATIONS REPORTING RESULTS OF USDA AND COOPERATIVE RESEARCH

Current Estimates of Farm Income and Expenditures

The Farm Income Situation, published in February, April, July and November of each year in the reporting period.

The Supplement to the Farm Income Situation for July, August 1963.

Farm Income Leveling Off in 1962 by Q.F. Dallavalle and A.R. Kendall, Agricultural Situation, SRS, USDA, September 1962.

1962 Cash Receipts Up in Most States by Mardy Myers, Agricultural Situation, SRS, USDA, April 1963.

Per Capita Farm Income Up in 1962 by Mardy Myers, Agricultural Situation, SRS, USDA, August 1963.

Research and Methods Relating to Farm Income

Masucci, Robert H. "Income Parity Standards for Agriculture," Agricultural Economics Research, Vol. XIV, No. 4, October 1962.

Randall, C. Kyle and Masucci, Robert H. "Farm-Nonfarm Income Comparisons," Journal of Farm Economics, Vol. 45, No. 2, May 1963.

AREA NO. 4. ECONOMIC OUTLOOK, CONSUMPTION AND LONG-RUN PROJECTIONS

Problem. This area of research encompasses comprehensive continuing analyses of changes in domestic and foreign economic activity, related agricultural policy, technological developments, food consumption and nutrition, and their impact on the agricultural situation and outlook and on changes in prospect for agriculture and major groups of commodities. These analyses are concerned with the current situation, economic outlook, and longer-run projections. They require the development of statistical data relating to the demand for farm products, domestic consumption trends, foreign trade, the supply-utilization balance for major farm products, farm prices and incomes, and general economic activity. These data and economic analyses based on them are essential to farmers, legislators, administrators, private businesses, and others concerned with scheduling the production and marketing of farm products and with the development and appraisal of policy programs.

USDA PROGRAM

The Department has a continuing long-term program in economic outlook, consumption of farm products, longer-run projections and policy appraisal. The staff of the Outlook and Projections Branch participating in this work averaged for the current program 8.5 professional man years. Programs and activities in the three areas of work are discussed below.

Demand Analysis and Agricultural Outlook

This program appraises developments in economic activity, foreign demand, farm policy, and agricultural resource use. Consequences of these developments are analyzed with respect to implications for demand and supply of farm products, prices received and paid by farmers, farm income, and the general agricultural situation and outlook. Underlying the situation appraisals and outlook reports is a continuing research program developing economic frameworks and making statistical analyses of the structure of the general economy, the agricultural economy, and various sectors of agriculture. Results are reported quarterly in The Demand and Price Situation in addition to frequent reports in other situation publications, special articles, presentations at National and Regional Agricultural Outlook Conferences, bulletins, professional journals, memoranda, and correspondence.

The work in this area is located in Washington. There are no formal cooperative arrangements with other agencies of the Federal Government, State Universities and the Extension Service, or private groups. However, there is extensive informal cooperation with all of the above groups and close working relationships are maintained with the State Universities and Extension Services in connection with the National and Regional Agricultural Outlook Conference.

During the past year an average of about $3\frac{1}{4}$ professional man-years were devoted to this line of work.

Long-run Agricultural Projections

Research and analytical work in this area is oriented toward the longer-run prospects for agriculture relative to growth in the economy and in population, regional shifts and changes in the age distribution of the population, longer-run changes in the demand for farm products, technological developments and productivity trends influencing output, farm programs and other forces affecting prospective trends in domestic and foreign demand for farm products, output, prices, and incomes received by farmers.

The work is located in Washington. Cooperative working arrangements with other Divisions of the Economic Research Service and with other agencies of the Government are effected through the ERS Committee on Economic Projections. Informal contacts are maintained with State Universities, public and private research groups, private business, UN agencies, and others interested in longer-run appraisals for agriculture.

Effort devoted to this line of work totaled about $2\frac{1}{2}$ professional man-years plus the contribution of many commodity specialists in other Branches of ESA and other Divisions of ERS. Work of other contributors is reported by their Branches.

Supplies and Utilization of Food and Other Agricultural Products

This work continues a long-term program of measurement and appraisal of the supply and consumption of foods and other farm products. Applications of statistical and analytical techniques are used in the assembly, aggregation, evaluation, and dissemination of information concerned with the supply and utilization of food and other farm commodities. Indexes of per capita consumption of food products and of supply and utilization of all farm products, both food and nonfood, are developed and regularly published. These indexes, together with price, income, expenditure, and population series, are currently evaluated and short-run outlook formulated. Supporting research on techniques and methodology in this area relates to factors influencing changes in consumption of food and other farm products. Analyses of the food situation, results of research work, and data are published regularly in the National Food Situation and commodity situation reports, in bulletins and handbooks, in annual statistical supplements, official memoranda, articles in professional journals, and speeches.

This work is located in Washington. No formal cooperative agreements are in effect with other Government agencies or private groups, but extensive informal cooperative working arrangements are maintained with other Divisions and agencies of USDA, other Federal and State agencies, Universities and private research groups. Professional time spent in this area of work averaged about 2.7 man-years during the past year.

REPORT OF PROGRESS FOR USDA AND COOPERATIVE PROGRAMS

A. Demand Analysis and Agricultural Outlook

The agricultural situation and outlook for 1963 was reported in the November 1962 issue of the Demand and Price Situation. This report states that, "the outlook for 1963 points to another year of relatively small changes in farm product prices, output, and marketings. Realized net income of farm operators also is expected to continue around the improved level of 1961 and 1962." "Output of farm products in 1963 will likely rise a little above the level of the past three years. The final outturn will depend on a number of factors, including growing conditions and the impact of 1963 programs on acreage and production." "Little change in cash receipts from marketings, and prospective larger Government payments in 1963 point to a further small gain in gross farm income. But the increase may be largely offset by rising farm production expenditures." "Some further increase is expected in consumer expenditures for food and other farm products in 1963 with domestic use of farm products up again about in line with growth in population. Foreign markets are also expected to take near-record quantities of agricultural commodities next year. The slackening in the rate of economic growth in major importing countries and Common Market trade restrictions may limit U.S. exports of some commodities. Continued large shipments under export programs will help to maintain total agricultural exports."

Less extensive analyses of the agricultural situation and general economic outlook were prepared for release in the Demand and Price Situation in January, April, and July; monthly reports were released in the Farm Index. In addition to appraisals of general business conditions and their impact on prices, marketings, and incomes of farmers, the above reports included discussions of operations of the CCC, foreign trade, monetary conditions and the balance of payments, Federal programs and changes in agricultural policy, and other developments bearing on the situation and outlook for agriculture.

Research work on methodology and techniques included some exploratory work on an overall analytical framework to appraise prospective supplies of farm products in relation to resource inputs and farm programs and to integrate these analyses with forecasts of prospective demand conditions in order to estimate prices and utilization of major crops and livestock products. A number of statistical analyses were carried out appraising factors influencing consumption, investment, and the flow of income to consumers. Such empirical measurements provide the techniques for analysis of prospective changes in general business conditions and the probable impacts of policy changes.

B. Long-run Agricultural Projections

During the past year work in this area has been primarily concerned with the development of the prospects for agriculture during the next 5 years. An Administrative document, Agriculture: Demand, Output, Prices, and Income Projections for 1967, appraised prospects for all agricultural products during the 5-year period, under alternative program assumptions. In brief, this report concluded that, agriculture will continue to face the problems of an output potential in excess of domestic and foreign market outlets at prices that would give farmers a reasonable income.

"Under 1962 program assumptions, farm output is projected to rise about 9 percent above the 1959-61 level." "Total domestic food use is projected for 1967 some 10 percent above the 1959-61 average..." "Specific results indicate that a continuation of the feed grain and wheat programs as well as current programs for other commodities would maintain net farm income and prices near the levels of recent years. Output, particularly for wheat and feed grains, would be restricted and stocks materially reduced, particularly stocks of feed grains. Wheat carryover stocks would be gradually reduced toward more 'normal' levels. But current programs for cotton and dairy products may lead to some further build-up in already excessive carryover stocks of these commodities."

"Under the 'free market' assumptions, without price supports or production controls, prices would drop precipitously. Estimated equilibrium prices, under these assumptions, may average 25 percent below the 1959-61 average." "...acreage previously withheld from production would be planted to crops and...farm output would increase by around 16 percent--about double the prospective increase under 1962 programs."

A similar 5-year projection for agriculture is nearly complete with a target date of 1968 based on current programs and other program alternatives. This material is being prepared for presentation at the National Outlook Conference in November 1963.

An administrative report was prepared on, Prospective Trends in the Utilization and Supply of Timber Products. This appraisal indicated that, "Projections of net annual growth of all timber indicate that the growth in prospect will exceed projected increases in the cut of timber. The growth-cut ratio for hardwoods is larger than for softwoods, reflecting the relatively larger supplies of hardwoods. Projected growth of softwoods and the prospective cut needed to meet increases in utilization indicate for the next few decades a ratio of growth to cut in the range of 1.15 to 1.25--not materially different than the growth-cut ratio for softwoods in 1961." "This new appraisal of the problem does not suggest, under conditions assumed, any material change in the general utilization-supply balance for hardwood and softwood timber during the next few decades."

In connection with their work on water resource development, the Economic Task Group of the Interim Water Resources Council requested our participation in an appraisal of prospective economic growth in the U.S. The task group is made up of representatives concerned with water resource development in USDA, Corps of Engineers, Department of Interior, and Health, Education and Welfare. After consultation with this group, it was suggested that some standard economic growth assumptions should be developed for use by each agency. A report, National Economic Growth Projections, 1980, 2000, 2020, was prepared in response to this request.

In addition to the above, staff members participated in a number of requests for economic projections and policy appraisals. These included: (1) A meeting of experts on agricultural projections sponsored by the F.A.O.; (2) an appraisal of a direct payments program for agriculture; (3) participation with the Department of Commerce in a study of prospective shipments of grains on the St. Lawrence Seaway; and (4) developed demand projections for the Great Lakes Task Force Study Group.

C. Supplies and Utilization of Food and Other Farm Products

The National Food Situation reported that, "rising population and consumer incomes are providing the stimulus for a continuing rise in demand for food products during 1963... Total food use in 1963 likely will rise around 2 percent from 1962. A small increase in food consumption per capita is anticipated. Per capita consumption of beef in 1963 may be up 4 percent, chicken may be up even more. Declines, on a per capita basis, are looked for in fish, fruit, and eggs... Retail food prices in the first half of this year exceeded year-earlier levels by about $1\frac{1}{2}$ percent. Nearly stable prices, on the average, are anticipated for the remainder of the year." "Consumers will probably increase their outlays for food again in 1963, but the increase may not be as large as during the past year. Levels of economic activity in prospect for 1963 point to a modest gain in consumer income and in the demand for food."

Special articles in The National Food Situation included reports on the "World Food Congress" and "Food Consumption Under the Food Stamp Program," "Prices and Consumption of Meat and Poultry," "Imports for Civilian Food," "The World Food Situation," and "Nutritional Review."

A statistical supplement was published updating data on consumption of food in the United States.

Statistical tables on the supply and disposition of all major foods were prepared quarterly and widely disseminated throughout the Department and other Government agencies.

Revision was continued on the overall framework of supply-utilization indexes for agricultural products. Index number problems were studied and corrections introduced. Coordination of supply-utilization of farm food products using farm prices with consumption of food products using retail prices was undertaken.

PUBLICATIONS REPORTING RESULTS OF USDA AND COOPERATIVE RESEARCH

Demand Analysis and Agricultural Outlook

Edwards, Clark. 1962. Increasing Gross Farm Income Offset by Rising Costs. Agricultural Situation.

Edwards, Clark. 1963. Slightly Higher Prices Paid to Farmers in 1962 Than In 1961. Agricultural Situation.

Edwards, Clark. 1963. 1963 Farmers' Cash Receipts Expected to be Near 1962. Agricultural Situation.

Edwards, Clark. 1963. Using Discrete Programming. Agricultural Economics Research. Vol. XV, No. 2.

Edwards, Clark. 1963. An Illustration of Integer Programming. Southern Farm Management Committee. New Orleans, Louisiana.

Daly, R. F. 1962. National Economic Situation and Outlook for 1963. Annual Agricultural Outlook Conference.

Daly, R. F. 1962. General Economic Outlook for 1963. 1962 Conference on Revenue Estimating. National Association of Tax Administrators.

Daly, R. F. 1963. General Economic and Agricultural Situation for 1964. Great Plains and Western Outlook Conference and Midwest Regional Outlook Conference.

Finn, Gene L. 1963. Agriculture's Budget and the National Income Accounts.

Long-run Agricultural Projections

Egbert, A. C. et. al. 1963. Agriculture: Demand, Output, Price and Income Projections For 1967. Administrative report.

1962. Prospective Trends in the Utilization and Supply of Timber Products. Staff of the Economic and Statistical Analysis Division under the general supervision of Chief, Outlook and Projections Branch.

Daly, R. F. 1963. National Economic Growth Projections, 1980, 2000, 2020. Prepared for Economic Task Group of the Ad Hoc Water Resources Council Staff.

Daly, R. F. 1963. Report of the U.S. Delegate to the Meeting of Experts on Agricultural Projections. Geneva, Switzerland.

Egbert, A. C. 1963. A Single Matrix Method for Several Problems. Agricultural Economics Research. Vol. XV, No. 3.

Daly, R. F. and Egbert, A. C. 1963. A Direct Payments Program for Agriculture: Estimated Production, Prices, and Payments

Daly, R. F. 1963. The National Environment for Business and Agriculture in the 1970's. Connecticut Cooperative Extension Conference. Storrs, Connecticut.

Daly, R. F. 1963. Economic Growth and Agriculture: The Next Two Decades. North Carolina State College Seminar on Agricultural Policy. Raleigh, North Carolina.

Reutlinger, Shlomo. 1963. Alternative Uncertainty Models for Predicting Supply Response. AFEA Annual Meetings. St. Paul, Minnesota.

Supplies and Utilization of Food and Other Agricultural Products

1963. Supplement for 1962. Consumption of Food in the United States, 1909-52. Agricultural Handbook No. 62.

Lavell, R. J. 1963. Structure of the Domestic Market for Beef. National Beef Cattle Conference. Ames, Iowa.

Lanahan, T. J. Jr. 1962. Outlook for Food Supplies and Prices. Annual Agricultural Outlook Conference.

Hiemstra, S. J. 1963. How Much is Being Spent in the United States This Year for Food. Agricultural Situation.

Hiemstra, S. J. 1963. Profits As a Measure of Profitability. AFEA Meetings. St. Paul, Minnesota.

AREA NO. 5. AGRICULTURAL HISTORY

Problem. Historical research on major developments in farming and major changes in policies, programs, and organization of the Department of Agriculture provides a background for understanding current agricultural problems, for developing governmental programs aimed at solving these problems, and for developing a wider understanding of the past achievements of agriculture and the Department. Historical studies have provided some of the basic information needed by the Secretary of Agriculture, advisory committees appointed by the Secretary of Agriculture, Presidential commissions, and the Congress in formulating agricultural programs and policies. The accuracy of the studies and the promptness with which needs have been met have contributed to the more effective functioning of the Office of the Secretary and other policy-making offices and agencies.

USDA PROGRAM

The Department has a continuing long-term program of historical research carried out by historians working in close cooperation with economists, statisticians, physical scientists, and others. The program involves both basic research and the application of the results of basic research to current problems.

This project includes all formal research work in agricultural history carried on by the Federal Government. The effort devoted to the project totals 5.2 professional man-years. These resources are divided as follows:

- (a) Work on the development of agriculture in the United States, which currently involves 2.1 professional man-years.
- (b) Work on the history of USDA programs and organization, which currently involves 3.1 professional man-years.

REPORT OF PROGRESS FOR USDA AND COOPERATIVE PROGRAMS

A. Development of agriculture in the United States

As the only office in the Federal Government conducting historical research on the development of American agriculture, the staff carries out numerous analyses of particular problems for the Administrator, the Office of the Secretary, other Government agencies, and research workers in the land-grant colleges and elsewhere. In some cases the analyses are published, but many are not.

The idea of technological revolutions in agriculture centering around the Civil War and World War II, developed through research in this office, has won considerable acceptance. A limited amount of research is being devoted to the problem of quantitative measurements of such revolutions. During the past year, material resulting from this research was prepared for and used in Agriculture Economic Report No. 28, Agriculture and Economic Growth.

Some work is being undertaken in the preparation of a comprehensive analytic index or guide to source material on American agricultural history. The first work has been concentrated on sources for the history of fruits and vegetables, a subject upon which many inquiries are received every year.

Basic research on the history of farm organizations continued during the year. Most of the research was carried out in order to complete an assignment for the Office of the Secretary, but it will be useful in longer-range research programs.

B. History of USDA programs and organization

The publication of the Centennial History of the Department, described in Agricultural History as "one of the finest official histories to come from a government department," has released research time for other projects and has permitted a decline in total employment.

The Cuban crisis and renewed emphasis on defense planning led to an immediate demand for historical material based upon the experiences of the Department in World War II and the Korean War, including analyses of the role of the War Food Administration. Material important in making vital decisions was supplied immediately. Additional analyses in this area have been made during the period since the Cuban crisis, and have been made available to persons responsible for defense planning.

Work on historical studies of agricultural policies and programs has been emphasized during the past year and will continue to receive emphasis. A number of staff studies have been prepared upon assignment from the Office of the Administrator and the Office of the Secretary. In addition, results of research on agricultural policies and programs have been presented, on request, in lectures and seminars at Michigan State University, University of Wisconsin, University of Illinois, Iowa State University, University of California at Davis, and the National Council of Churches. As in all history projects, considerable time was devoted to service work in answering requests for historical information from Department and other Government officials and the public.

Research completed on the history of price support and adjustment programs was of importance in preparing several of the staff studies needed by the Office of the Secretary. The origins of particular ideas proposed for supporting farm prices has been investigated in recent months.

At the request of and in cooperation with the foreign divisions of the Economic Research Service and the Foreign Agricultural Service, work is beginning on a comprehensive history of U. S. technical assistance programs in agriculture. This study will continue as a major project during the coming year.

At the request of the Department's Office of Personnel, a history of personnel management in the Department will be undertaken during the coming year. The project is of significance outside the Department in that USDA personnel programs have influenced many other government agencies.

PUBLICATIONS REPORTING RESULTS OF USDA AND COOPERATIVE RESEARCH

Baker, G. L., Rasmussen, W. D., Wiser, V., and Porter, J. M., 1963.

Century of Service: The First 100 Years of the United States Department of Agriculture. 560 pp.

AREA NO. 6. FARM POPULATION AND RURAL LIFE

Problem. The continuing rapid increases in the productivity of United States agriculture in recent decades, along with an expanding urban-industrial economy, have brought about great changes in the farm and rural population, in the farm manpower situation, and in the level of living of farm people. Because of the characteristic occupational and geographic mobility of rural people and the structural changes occurring in our agriculture under the impact of technological and economic progress, further changes can be expected in the size, composition, and distribution of the farm population, the farm working force, and the level of living of farm and rural people. These past and prospective trends of a declining farm population have widespread implications on agricultural policy through their effects on the manpower situation, the scale of "family farming" and the relationship between farm and nonfarm levels of living. To measure these trends adequately, it is necessary to maintain up-to-date inventories of the population living on farms, the volume and direction of migration between farm and nonfarm areas, the levels of employment and labor conditions in agriculture, and adequate measures of the level of living, and relative well-being of farm and rural people. The collection of basic statistics in these areas, along with strengthened research and analyses, are of vital importance to a fuller understanding of the impact of agricultural policies and general economic and social conditions on agriculture, as guides to agricultural program reappraisals and implementation of new activities such as the Rural Areas Development Program.

USDA PROGRAM

The Department has a long-time continuing program of work designed to develop and analyze information on the farm and rural population; on the rural labor force; on levels of living of farm and other rural people; on population, manpower and related aspects of rural development; and on the retirement plans and attitudes toward retirement of farmers.

Studies of all types indicated above are being carried on in the Washington office both independently and in cooperation with other agencies of the Department, such as the Resource Development Economics Division and the Statistical Reporting Service, and in cooperation with other Federal departments, including the Bureau of the Census, the Department of Labor, and the Department of Health, Education, and Welfare.

Farm population and related studies are being carried on in cooperation with or by contract with Experiment Stations in Iowa, Colorado, Delaware, Michigan, Oklahoma, and the Department provides consultant service to regional population projects involving 12 Northeastern States, 13 North Central States, and 16 Southern States. Work is also done cooperatively or through contract with the Statistical Reporting Service and with the Bureau of the Census.

Manpower studies are done by the Washington Staff through contract for gathering of basic data with the Bureau of the Census, and through analyses of other data published by the Departments of Agriculture and Labor and the Census Bureau. In addition other studies on rural manpower problems are carried on in cooperation with various State Experiment Stations.

A study of the impact of social security on farm people in cooperation with the Experiment Station in Minnesota has been approved for publication. A study of retirement plans and adjustments of farmers to retirement was done in cooperation with the South Dakota Experiment Station and a report is now in preparation.

Studies relating to various aspects of levels of living, health, and education of farm and rural people have been completed or are being carried on in cooperation with Experiment Stations in Connecticut, Kentucky, and Florida. Also, data from the Bureau of the Census and other sources have been utilized for analyzing farm operator levels of living.

Many of the above projects provide data of particular relevance to rural development programs. In addition, studies on rural development aspects of population, manpower or level of living have been completed or are being carried on cooperatively with the Experiment Stations in Ohio, Iowa, Texas, Louisiana, Michigan, and Colorado.

The Federal effort devoted to research in this area currently totals 13.5 man-years per year with 4.8 being devoted to Farm Population, 3.6 to Manpower, .3 to Social Security, 3.3 to Levels of Living and 1.5 to Rural Development.

Two line projects were terminated upon completion of analysis and two new projects have been initiated in this area of work.

REPORT OF PROGRESS FOR USDA AND COOPERATIVE PROGRAMS

A. Farm Population Changes, Trends, and Migration Patterns

1. Population Changes and Trends. The farm population numbered about 14,313,000 in 1962, a decline of about 1,320,000 from the previous year. During the reporting year, estimates of the farm population and of the components of change (natural increase and migration) were prepared for geographic regions and divisions that correspond with the revised series of estimates for the United States for the years 1941-59, as were farm population estimates for States 1941-59. New farm population estimates and estimates of components of change were developed for regions and divisions for the years 1959-62. A report presenting the entire series of data on farm population from 1920 through 1962 is in press.

Annual estimates for 1962 indicated that the decline in farm population continued. Indications are that farm population will continue to decline in

1963. The farm population is a young population in the sense that it has a high proportion of children and teenaged youths; 43 percent of all farm people are under 20 years old compared with 39 percent of nonfarm people. However, it is rather low in its proportion of young adults and persons of early middle age. The low proportion of such persons reflects the high rates of outmigration that have persisted among young farm adults for the last two decades. The labor force living on farms in the year centered on April 1962 is estimated at 5,795,000 persons. Of this number, 65 percent were employed wholly or primarily in agriculture, 33 percent were wholly or primarily in nonagricultural work, and 2 percent were unemployed. The proportion of farm resident people engaged in nonagricultural jobs shows no significant change since 1960. Of employed farm men, about three-fourths were in agriculture in 1962 but only about half of employed women were doing farm work. With respect to labor force characteristics, the farm population of the South differs from that of the rest of the Nation primarily in the proportion of farm people doing nonfarm work. In the South, where low-income farms are most prevalent, workers living on farms are more likely to have nonfarm jobs as their principal employment than is true of farm residents in the North and West.

In response to the need for a general report on population trends which discusses rural changes in the context of overall changes, a report was issued on recent population trends in the United States, with emphasis on rural areas. It was prepared on the initiative and with the co-authorship of the Population Research and Training Center, University of Chicago. Among the points emphasized are the increasing number of rural counties with very small population resulting from population decline usually associated with farming adjustments, and the substantial distortion of the age structure of their population resulting from heavy outmigration of young adults.

The Department continued to supply consulting service to regional projects concerned with population analyses. Research findings from the regional projects are not reported as the Department's role has been strictly of an advisory nature in this period.

Work continued on a cooperative project, with Oklahoma State University, studying variations in the 1950-60 gains and losses of population in towns and cities of under 10,000 in the South. However, work on the 1950-60 migration study, with the same cooperator, has been given priority.

The computational work on the project designed to produce measures of the potential replacement in the rural population of labor force age was completed by the Michigan State University for the Department of Agriculture. A report on the findings is in progress. Preliminary computations indicate that in the absence of migration from the farm population there would be about 160 young farm men reaching age 20 for every 100 older men leaving working age 20-64 through death or retirement, during the 1960-70 decade. This ratio is not greatly different from the previous decade when the replacement ratio for this working age group was 168.

2. Migration. Data on migration from the farm population for the United States and major areas thereof have been developed and analyzed. Also, field studies were conducted in selected States on adjustment processes associated with migration.

Estimates of net migration developed in connection with the revised estimates of farm population for the 1940-60 period, mentioned above, indicate that between 1950 and 1960 the rate of net movement from the farm population was 5.3 percent, a larger rate than those in the three preceding decades.

The large project devoted to the computation and analyses of migration estimates and rates for counties and other areas of the United States, which is cooperative with Oklahoma State University, has progressed to the stage of print-out of the volume of tabular materials. Plans are to publish the results in a two volume set of bulletins. Volume I will have two parts-- part one for analysis and statistics for Regions, Divisions, States, Economic Subregions, and certain analytical typologies, and part two for Standard Metropolitan Statistical Areas. Volume II will be in nine parts, one for each geographic division, including tables for States and the counties in each State. Data will be presented on the net migration to or from each area, by age, sex, and color.

Analysis of data obtained on the U. S. population 18 years old and over classified by whether or not they were born on farms is nearing completion. In May 1958, 25.8 million native-born persons 18 years of age and over had been born on farms; nearly one-fourth of the total population of this age. However, only 9.5 million of the farm-born (37 percent) still lived on a farm. Thus, as a result of outmigration, many more farm-born persons now live in cities and other nonfarm places than on the farm. Until age 18, most farm-born young people remain on the farm. Between the ages of 18 and 24, one-half of these young adults leave the farm, and in the next 10 years of their lives an additional 15 percent move to a nonfarm residence. Of adults living on farms in 1958, about three-fifths had never lived off the farm. An additional fifth consisted of persons who were farm-born but who at sometime in their lives had moved off the farm only to move back again. Finally, about one-fifth of the people living on farms were not farm-born.

Manuscripts have been completed or are underway on several projects cooperative with Experiment Stations in selected States which have dealt with various aspects of migration that cannot be studied through analyses of data from the censuses or nationwide surveys. In Delaware, the processes of assimilation of migrants to an urban area were studied, revealing that the migrants in white collar occupations and those from other cities, tend to migrate through a relatively impersonal contact with the city (notably via the labor market) and to bring with them a significant amount of knowledge about cities in general and the city of destination in particular, which is likely to make assimilation somewhat easier. On the other hand, migrants in blue collar occupations and those from rural areas, are more likely to rely on personal ties (relatives and friends) and bring little prior knowledge

of the city with them, which tends to make assimilation somewhat more difficult, and less complete.

Two manuscripts have been reviewed from the Sedgwick County, Colorado study of migration and population change. Significant findings from these data have been reported previously.

A study of migrants to Des Moines, Iowa, which is similar in many respects to the Delaware study mentioned above, reveals that families with farm backgrounds had successfully adapted to urban conditions in Des Moines and were virtually indistinguishable from migrants with urban backgrounds or natives to Des Moines, with the same educational backgrounds. A general hypotheses regarding farm migrants, i.e. that farm migrants remain different, disadvantaged, and less well assimilated into the social systems of urban centers, received virtually no support in the Des Moines study. If the farm migrants experienced initial difficulties in adapting to urban life, such problems were not evident after they had lived in Des Moines for a number of years.

Another study in Iowa, dealing with the migration of farm people in the 1950-60 decade, showed that among those who changed residence, the farm laborers who left agriculture had a substantially higher educational level than those who changed residence but stayed in agriculture. Other findings of this study indicate the presence of a highly mobile segment in the open-country population. Less than half of the households in the sample accounted for 97 percent of the migration. The highest rate of residential change occurred among farm laborer families. They were almost three times as likely to have moved as were farm operators.

B. Farm and Rural Manpower Analyses

1. Agricultural Manpower, Employment, and Wages. An advance report on the 1962 survey of the hired farm working force conducted for the Economic Research Service by the Bureau of the Census in December, 1962, showed that nearly 3.6 million persons did farm wage work at some time during the year. Average daily cash earnings from farm work was \$6.80 compared with \$6.50 a year earlier. Data gathered on the types of farm labor done by workers showed that about a third of the male workers doing 25 days or more of farm wage work had substantial experience working with farm machinery during the year. Another fifth had some work with livestock.

A complete report on the 1961 hired farm working force was published during the year. For the first time, data were collected on the skill level of hired farm workers who did 25 or more days of farm wage work during the year. It was found that a third of all of the persons doing hired farm work performed only hand or stoop labor. Nearly 45 percent did a significant amount of work at jobs of somewhat higher skill such as truck and tractor driving or care of livestock and poultry. The remaining fifth of the workers were the skilled "elite", working as farm managers and foremen, mechanics for major machinery repair, or operators of self-propelled farm machinery.

A report was published during the year on the employment, earnings, and characteristics of Spanish-American wage workers on U. S. farms. These workers were found to number 261,000 or 7 percent of our hired farm workers in 1960. However, they made up a fourth of the migratory workers and were more likely than other workers to be doing farm work throughout most of the year rather than just seasonally. The majority of them were native-born U. S. citizens.

Service work under this line project included activity in connection with various Departmental and Interdepartmental committees, and guidance and assistance to the Office of the Secretary in cooperation with staffs of other agencies in the preparation of various materials dealing with farm labor. Staff members assisted in the preparation of a paper for the 40th Annual Outlook Conference, on changing occupations and levels of living of rural people, and prepared a chapter dealing with this subject for the 1963 Year-book of Agriculture.

2. Manpower Adjustments Associated with Suburbanization. A report on the rural-fringe and urban expansion published in this reporting period concerns the impact of rapidly expanding suburbanization on the farm and nonfarm population in the rural-fringe of the Washington metropolitan area. Some of the significant findings were reported previously. Additional analysis shows:

Although only one fringe family in 10 is living on a farm, more than half of the household heads have a rural background: either they were the sons of farmers (more than one-third were) or grew up in the open country. Fringe residents are oriented toward the rural rather than the urban side of fringe living, even among nonfarm residents who live nearer to the center of the city. The fringe is an area of contrasts. Tar paper shacks and stately mansions share fringe space with farms and industrial parks. All walks of life are represented among fringe residents; poor and rich, professional workers and unskilled laborers.

Fringe residents agree on one thing: the coming suburb will "take something away" from their community. But there is mixed approval for the social and economic change which will accompany the suburb such as increased social and recreational opportunity, public services, and the conveniences of urban shopping.

3. Manpower Adjustments Associated with Industrialization. A report on the impact on rural residents of industrialization in Chickasaw County, Mississippi, was published in the reporting year. All evidence from the study points strongly to processes of selection in industrial employment. While this means that many open-country residents are unlikely to be employed in industry, because of age, sex, color, education, etc., it also means that the type of person most likely to migrate to another area in search of a job is more likely to find industrial employment at home.

C. Impact of Social Security Programs on Farm People

1. Social Security. The significant findings of the studies relating to social security have been reported previously. A bulletin reporting the results of the study in Minnesota is in press and will be published in a month or two.

2. Retirement Plans. A report on the retirement plans and adjustments to retirement of farmers in South Dakota is in preparation. A first draft of the manuscript will be completed in the next few months.

Preliminary findings of the study indicate that acceptance of the retirement role as a definite possibility for themselves was not universal among the sample of farmers in eastern South Dakota. Among those who do accept the role, persons with definite plans were older, had more education and a higher net worth on the average, were more likely to be landowners and were more optimistic about their future financial status than those who had no plans. Only about one-seventh defined retirement as complete cessation of their major occupational roles, working and managing their farm enterprises. The majority expected to have less than full retirement while a small group thought it would involve very little reduction in their occupational activities. Respondents expressed a preference for a somewhat earlier age of retirement than is generally considered standard. Retirement would involve moving to another residence for the majority, but they preferred their new residence to be in a rural environment, in a single-family household. OASI and rental income from the farm were considered the best ways to finance retirement. Health was voted the most important factor influencing the enjoyment of retirement, followed by friends, income, hobbies, leisure habits, living arrangements, relatives, and having definite plans.

D. Population, Manpower, and Related Aspects of Rural Development

1. Rural Industrialization. Projects in this area of study are designed to appraise the impact of new industries on predominantly rural communities and to point up implications of rural industrialization for programs of rural development. Restudy of an area in Ohio first surveyed in 1957 was undertaken in 1962. Tabulations have been completed and the analyses and preparation of analytical reports is underway. It was found that a majority of the respondents indicated that the community benefited from a large aluminum plant which had been built in Monroe County some three years before. However, many persons felt that they did not benefit personally from the plant. Those who had benefited felt that benefits were due to the availability of work at the plant or in related industry for themselves or relatives. Others thought that the general increase in business activity was a benefit to them.

2. Human Resource Development. A project designed to study the human resources development in rural communities in Colorado and possibly other Rocky Mountain States was initiated during the year. The initial stages of the project will be conducted in Colorado in conjunction with a broader study of rural-urban labor mobility and rural community adjustment to be conducted

by the Colorado State University.

3. Adjustment of Special Groups. A series of studies have been conducted on the adjustments or the adjustment potentials of special groups, with particular attention in many of them to factors and attitudes of relevance to rural development programs. A study in Louisiana of the French and non-French in two low-income counties was reported on previously. The manuscript of a bulletin has been prepared and is in process of review. Persons of Spanish-American ancestry are a significant proportion of the Nation's hired farm working force, and are especially important in the Southwestern and other areas. Two studies have been conducted to determine trends in the availability of Spanish-American workers for agriculture along with related labor force data and demographic characteristics of this group. The study in Michigan consists of two phases; the first phase deals with Spanish-Americans domiciled locally; the second phase with migrant Spanish-Americans doing seasonal work in the sugar beet harvest in Michigan. Analysis of results is underway. The preliminary findings of a similar study of Spanish-Americans living in Texas were presented at the meetings of the Rural Sociological Society in August 1962, and also at the June 1963 meeting of the Southwestern Sociological Society. An analytical report will be completed in February 1964.

E. Rural Level of Living Studies

1. Level-of-Living Measures. This is a continuing project to obtain and analyze information necessary for the measurement of the levels of living of farm families as well as historical changes in levels of living. Indexes are developed for comparative studies of the levels of living of farm families in various parts of the United States. Social and economic factors associated with variations and changes in levels of living are analyzed and the information made available for research and administrative programs related to agriculture.

2. Education. A ten-year follow-up study of 750 young men enrolled in the eighth grade in eleven eastern Kentucky counties in 1950 showed that by 1960 more than half of the 307 respondents had dropped out of school before completing the twelfth grade and half had migrated from the area. About four out of ten of those living in eastern Kentucky were employed in agriculture or mining, whereas about half of the migrants from the area were employed in manufacturing industries and only five percent in agriculture. Half of those who had moved to urban centers were doing semi-skilled work. Completion of high school appeared to have little bearing on the early occupational achievement of migrants. Among those living in eastern Kentucky, however, completion of high school was significantly related to employment in higher status occupations. School dropouts were decidedly more pessimistic in outlook than were high school graduates, and 80 percent of the dropouts said that if they could start life over, they would get more formal education. The average income of migrants, as well as their levels of living, was substantially higher than of nonmigrants, and 53 percent of the migrants, compared with only nine percent of the nonmigrants, had annual incomes of \$5,000 or more.

Results of research on age-grade progress in school of farm and nonfarm youth showed that between 1950 and 1960 the proportion of rural-farm children enrolled in school increased substantially, particularly among those 16 and 17 years old. The percentage of white farm boys 16-17 years old enrolled in school was 65 in 1950 and 82 in 1960; comparable percentages for nonwhite farm boys were 53 and 70. Both farm and urban youth showed substantial improvement in rates of school progress during the decade, but the proportion of youngsters in grades expected for their age was considerably lower for farm than for urban youths. However, contrary to 1950, higher proportions of farm than of rural-nonfarm children were enrolled in grades expected for their age in 1960. Improvement was not as great for nonwhites as for whites in the farm population. Among Southern farm boys, white-nonwhite differences in percentage of 16 and 17 year olds in retarded grades were about the same in 1960 (37 percentage points) as in 1950 (39 percentage points).

The 1950 and 1960 Censuses of Population were used to derive estimates of the number and proportion of farm and nonfarm youths who dropped out of school before finishing high school. Between 1950 and 1960, both the number and proportion of actual school dropouts among 14-24 year olds declined from 7.8 million (32 percent) in 1950 to 6.1 million (23 percent) in 1960. In both years, nonwhites had substantially higher dropout rates than did whites. In 1960, nonwhite dropout rates (36 percent) were higher than those for whites (30 percent) a decade earlier. Among male farm residents 16-24 years old, the estimated total dropout rate for whites declined from 54 percent in 1950 to 32 percent in 1960; for nonwhites the decline was from 89 percent to 70 percent. In general, Southern dropout rates were higher than those in the rest of the United States in 1960. A State-by-State comparison of 19 year old school dropouts showed that the West North Central States had the lowest rates (23 percent) and that East South Central States had the highest (45 percent). In six States (Kansas, Illinois, Indiana, Michigan, Nebraska, and Ohio) the dropout rates for 19 year old farm youths were lower than those for rural-nonfarm or urban 19 year olds.

Research concerned with future plans of Florida farm youth is nearing completion. In 1962, all twelfth grade boys and girls (452) in three Florida counties were interviewed about their educational and occupational plans. Information was obtained also from high school records and the students' parents. Data have been coded and analysis is in process.

Analysis of education, skill level, and earnings of the hired farm working force in 1961 showed that 73 percent of all adult farm wage workers had no more than a grade school education and only one out of seven was a high school graduate. About three out of ten had completed less than five years of school; these were concentrated in the older age groups and among nonwhites. Over 60 percent of older nonwhite males had completed fewer than five years of school. The kinds of farm and nonfarm jobs of a majority of male regular and seasonal workers were those requiring a minimum of skill and education. There is, however, a small group of more highly skilled farm wage workers who have steady employment, earn comparatively high farm wages,

and, on the average, have more schooling than other farm wage workers. Among Southern workers with similar educational backgrounds and with similar farm jobs, whites received about a dollar a day more at farm wage work than did nonwhites.

3. Health. Health research in the Windham Community Hospital area in Connecticut (1961) found that 669 rural-farm and rural-nonfarm families showed general awareness of the importance of preventive health-care practices, but actual use of the practice was less common. Knowledge and use of recommended health practices were greatest in families in which the mother had more than a high school education. Income level of the family and occupation of the father also influenced the knowledge and use of practices. School health programs, well-baby clinics, and regular contact with a family physician resulted in a much higher proportion of children than of adults who had received recommended preventive medical care.

4. Planning for Older Age. A project on planning for older age among rural people in Kentucky was initiated during the year. Its purpose is to study the plans of middle-aged rural people for their older age with a view toward encouraging realistic planning.

PUBLICATIONS REPORTING RESULTS OF USDA AND COOPERATIVE RESEARCH

Farm Population Changes, Trends, and Migration Patterns

- Banks, V. J., Beale, C. L., and Bowles, G. K. 1963. Farm population . . . Estimates for 1910-62. ERS 130.
- Bauder, W. W. 1962. The impact of population change on rural community life: The economic system. Iowa State Univ. of Science and Technology, Coop. Ext. Serv. Soc. 9, 20 pp.
- Beale, C. L. 1962. Current and foreseeable trends in rural population. Family Economics Review, pp. 26-30. ARS 62-5. (Paper presented at meeting of Annual Agr. Outlook Conf., Washington, D.C.) 7 pp.
- Beale, C. L. 1963. Population and labor force trends relevant to weed control activities. (Paper presented at meeting of Southern Weed Conf., Mobile, Ala.) 8 pp.
- Beale, C. L., and Bogue, D. J. 1963. Recent population trends in the United States with emphasis on rural areas. Agr. Econ. Rpt. 23, 48 pp.
- Burchinal, L. G. 1963. Farm versus nonfarm youth in the urban labor market. Extension Service Review, 341, p 144.
- Burchinal, L. G., and Bauder, W. W. 1963. Integration of farm-and urban-reared persons in Des Moines. (Paper presented at meeting of Rur. Sociol. Soc., Los Angeles, Calif.) 19 pp.
- Burchinal, L. G., and Bauder, W. W. 1963. Interrelationships among types of kinship aid patterns. (Paper presented at meeting of National Council on Family Relations, Denver, Colo.)
- Burchinal, L. G., and Bauder, W. W. 1963. Migration of parents, children's educational and occupational attainment, and parents' educational and occupational aspirations for their children. (Paper presented at joint meeting of Rur. Sociol. Soc. and Amer. Sociol. Assoc., Los Angeles, Calif.) 17 pp.
- Ducoff, L. J. 1963. Interdisciplinary relationships between demography, economics, and sociology. (Paper presented at meeting of Rur. Sociol. Soc., Los Angeles, Calif.) 12 pp.
- Skrabaneck, R. L., Banks, V. J., and Bowles, G. K. 1963. Farmer adjustment to drouth in a Texas county. Tex. Agr. Expt. Sta. Bul.
- Tilly, C. 1962. The assimilation of rural and urban migrants in Wilmington, Delaware. (Paper presented at meeting of Rur. Sociol. Soc., Washington, D.C.) 18 pp.
- U. S. Dept. Commerce, Bureau of the Census, and U. S. Dept. Agr., Economic Research Service. 1963. Estimates of the farm population of the United States, April 1962. Farm Population. Series Census-ERS P-27, No. 33, 6 pp.

Farm and Rural Manpower Analysis

- Baum, S., Friend, R. E., and Stansberry, R. R., Jr. 1963. The hired farm working force of 1961. Agr. Econ. Rpt. 36, 57 pp.
- Cowhig, J. D. 1963. Education, skill level, and earnings of the hired

- farm working force of 1961. Agr. Econ. Rpt. 26, 21 pp.
- Ducoff, L. J. 1962. Changing occupations and levels of living of rural people. (Paper presented at meeting of Annual Agr. Outlook Conf., Washington, D.C.) 21 pp.
- Ducoff, L. J. 1963. Occupations and levels of living of rural people. Chapter in 1963 Yearbook of Agriculture, 7 pp.
- Friend, R. E., and Baum, S. 1963. Economic, social, and demographic characteristics of Spanish-American wage workers on U. S. farms. Agr. Econ. Rpt. 27, 21 pp.
- Stansberry, R. R., Jr. 1963. The rural fringe and urban expansion: A case study of Prince Georges and Montgomery Counties, Maryland. Agr. Econ. Rpt., 36 pp.
- U. S. Dept. Agr., Economic Research Service. 1963. Advance report of the hired farm working force of 1962. 8 pp.

Impact of Social Security Program on Farm People

- Bauder, W. W. 1963. The concept of retirement among farm operators in South Dakota. (Paper presented at meeting of Rur. Sociol. Soc., Los Angeles, Calif.)
- Taves, M. J., and Hansen, G. D. 1963. Minnesota farmers and social security. Minn. Agr. Expt. Sta. Bul. 467, 44 pp.

Population, Manpower, and Related Aspects of Rural Development

- Skrabaneck, R. L. 1963. Occupation patterns of Spanish-Americans in selected areas of Texas. (Paper presented at meeting of Southwestern Sociol. Soc., Dallas, Tex.) 17 pp.
- Wilber, G. L., and Maitland, S. T. 1963. Industrialization in Chickasaw County, Mississippi: A study of rural residents. Miss. Agr. Expt. Sta. Bul. 652, 23 pp.
- Youmans, E. G. 1963. Aging patterns in a rural and an urban area of Kentucky. Ky. Agr. Expt. Sta. Bul. 681, 80 pp.

Rural Level of Living Analyses

- Burchinal, L. G., and Cowhig, J. D. 1963. Rural youth in an urban society. Children, 10, pp. 167-172. (Paper prepared for National Conference on Problems of Rural Youth in a Changing Environment, Stillwater, Okla.)
- Cowhig, J. D. 1963. Age-grade school progress of farm and nonfarm youth: 1960. Agr. Econ. Rpt. 40, 22 pp.
- Cowhig, J. D. 1963. School dropout rates among farm and nonfarm youth: 1950 and 1960. Agr. Econ. Rpt. 42, 30 pp.
- Cowhig, J. D. and Beale, C. L. 1963. Socioeconomic differences between white and nonwhite farm populations of the South. (Paper presented at meeting of Rur. Sociol. Soc., Los Angeles, Calif.) 15 pp.

- Ellenbogen, B. L., and others. 1962. Changes in the availability and use of health resources in two western New York counties: Identical households, 1950 and 1958. Cornell Univ. Dept. of Rur. Sociol. Bul. 55, 37 pp. R. A. Danley, D. G. Hay, and O. F. Larson, joint authors.
- Schwarzweiler, H. K. 1963. A follow-up study of young men from eastern Kentucky. Part 1: Sociocultural origins and migration patterns. Ky. Agr. Expt. Sta. ARS Prog. Rpt.
- Schwarzweiler, H. K. 1963. A follow-up study of young men from eastern Kentucky. Part 2: Career placement and economic life changes. Ky. Agr. Expt. Sta. Res. Bul.
- Schwarzweiler, H. K. 1963. A follow-up study of young men from eastern Kentucky. Part 3: Familism, migration, and transitional adjustment. Ky. Agr. Expt. Sta. Bul.
- Schwarzweiler, H. K. 1963. Education, migration, and economic life changes of male entrants to the labor force from a rural low-income area. Social Forces.
- Youmans, E. G. 1963. The rural school dropout. (Paper presented at meeting of Rur. Sociol. Soc., Los Angeles, Calif.)
- Youmans, E. G. 1963. The rural school dropout: A ten-year follow-up study of eastern Kentucky youth. Bur. of School Services, Univ. of Ky.

Line Project Check List -- Reporting Year October 1, 1962 to September 30, 1963

Work & Line Project Number	Work and Line Project Titles	Work Locations During Past Year	Line Proj. Incl. in	
			Summary of Progress	Area & Sub- Subheading
ESA 1	Current Outlook and Situation Analysis for Agricultural Commodities	Washington, D.C.		
ESA 1-1	Livestock and meat	Washington, D.C. & Denver, Colo.	Yes	1-A
ESA 1-2	Fats, oils and oilseeds	Washington, D.C.	Yes	1-B
ESA 1-3	Milk and manufactured dairy products	Washington, D.C.	Yes	1-C
ESA 1-4	Poultry and eggs	Washington, D.C.	Yes	1-D
ESA 1-5	Food Grains	Washington, D.C.	Yes	1-E-1,2,3
ESA 1-6	Feed grains and other feeds	Washington, D.C.	Yes	1-F
ESA 1-7	Fruits and tree nuts	Washington, D.C.	Yes	1-G-1,2,3
ESA 1-8	Vegetables	Washington, D.C.	Yes	1-H-1,2
ESA 1-9	Sugar and allied sweeteners*	Washington, D.C.	No	
ESA 1-10	Cotton and synthetic fibers	Washington, D.C.	Yes	1-I
ESA 1-11	Animal fibers	Washington, D.C.	Yes	1-J
ESA 1-12	Tobacco and tobacco products	Washington, D.C.	Yes	1-K
ESA 2	Price, Supply, and Utilization Analysis for Farm Products	Washington, D.C.		
ESA 2-1	Development, consultation and service work	Washington, D.C. Raleigh, N.C.	Yes	2-I
ESA 2-2	State and geographic price differentials**	Washington, D.C.	No	
ESA 2-3	Effects of technological changes on tobacco	Washington, D.C.	Yes	2-H
ESA 2-4	Supply and price of hogs***	Washington, D.C.	Yes	2-A
ESA 2-5	Price, demand and utilization of fruits	Washington, D.C.	Yes	2-D,E
ESA 2-6	Consumption of textile fibers	Washington, D.C.	Yes	2-C
ESA 2-7	Price and utilization of cotton	Washington, D.C.	Yes	2-C
ESA 2-8	Price and supply of beef cattle	Washington, D.C.	Yes	2-A
ESA 2-9	Price and consumption of meat	Washington, D.C.	Yes	2-A
ESA 2-10	Price, supply and utilization of vegetables	Washington, D.C.	Yes	2-F,G
ESA 2-11	Price, supply and consumption of poultry	Washington, D.C.	No	
ESA 2-12	Factors that affect the feed-livestock economy	Washington, D.C.	Yes	2-A,B
ESA 2-13	Supply, price and utilization of tobacco	Washington, D.C.	Yes	2-H

*No work done during reporting period.

**Discontinued during reporting year. Some work of this type reported under other line projects.

***Discontinued during reporting period.

Line Project Check List -- Reporting Period October 1, 1962 to September 30, 1963 (Cont'd)

Work & Line Project Number	Work and Line Project Titles	Work Locations During Past Year	Line Proj. Incl. in	
			Summary of Progress	Area & Sub- Subheading
ESA 3	Measurement and analysis of farm income and expenditures	Washington, D.C.		
ESA 3-1	Current estimates of cash receipts, gross and net farm income, and related series	Washington, D.C.	Yes	3-A
ESA 4	Research and methods relating to farm income estimates	Washington, D.C.		
ESA 4-1	Research and methods relating to farm income estimates	Washington, D.C.	Yes	3-B-1,2,3,4
ESA 4-2	Quantitative relationships between agriculture and other sectors of the economy	Washington, D.C.	Yes	3-C-1,2,3,4,5,6
ESA 5	Statistical data services	Washington, D.C.		
ESA 5-1	Statistical services which includes the centralization, maintenance, and analysis of basic economic data relating to agriculture	Washington, D.C.	Yes	3-D
ESA 6	Income and demand analysis as applied to agriculture and the agricultural outlook	Washington, D.C.	Yes	4-A
ESA 7	Long-run agricultural projections, analysis and research	Washington, D.C.	Yes	4-B
ESA 8	Measurement and analysis of supplies and consumption of food and other agricultural products	Washington, D.C.	Yes	4-C
ESA 8-1	Outlook analysis and current estimation of supplies and consumption of food and other products originating in agriculture	Washington, D.C.	Yes	4-C
ESA 8-2	Development and use of master index of supply-utilization of farm commodities	Washington, D.C.	Yes	4-C
ESA 8-3	Analysis of effects of changes in the structure of the U.S. economy on the demand for food	Washington, D.C.	Yes	4-C
ESA 8-4	Measurement and economic analysis of wastes and losses of food in marketing	Washington, D.C.	No	---
ESA 9	Agricultural history	Washington, D.C.		
ESA 9-1	Service work on the history of agriculture	Washington, D.C.	Yes	5-A
ESA 9-2	Documentation of Department policies, organization, and administration	Washington, D.C.	Yes	5-B
ESA 9-3	History of production and adjustment plans and programs	Washington, D.C.	Yes	5-B

Line Project Check List -- Reporting Period October 1, 1962 to September 30, 1963 (Cont'd)

Work & Line Project Number	Work and Line Project Titles	Work Locations During Past Year	Line Proj. Incl. in	
			Summary of Progress	Area & Sub- heading
ESA 10	Farm Population Studies	Washington, D.C.		
ESA 10-1	Estimates and analyses of size, composition and changes in current and future farm population, and service work in population statistics.	Washington, D.C.	Yes	6-A-1
ESA 10-2	Current estimates and analyses of migration of the farm and rural population.	Oklahoma	Yes	6-A-2
ESA 10-3	Population, agricultural, and economic factors relating to migration in the North Central Region.	Washington, D.C.	Yes	6-A-1
ESA 10-4	The effects of urban-industrial expansion on Northeastern agriculture.	North Central States	Yes	6-A-1
ESA 10-5*	Intentions and influences on decisions to migrate of high school seniors in low-income areas of Michigan.	Northeastern States	Yes	6-A-1
ESA 10-6	The impact of population change and migration on rural life in a Great Plains County (Sedgwick, Colorado).	Michigan	Yes	6-A-2
ESA 10-7	Characteristics of the French and Non-French rural populations in Louisiana, with special reference to factors relevant to rural development.	Colorado	Yes	6-A-2
ESA 10-8	Adjustment of rural migrant families in metropolitan areas (Iowa).	Louisiana	Yes	6-D-3
ESA 10-9	Adjustment of rural migrants in Wilmington, Delaware.	Washington, D.C.	Yes	6-A-2
ESA 10-10	Migration of farm people in Iowa during the 1950-60 decade.	Iowa	Yes	6-A-2
ESA 10-11	Analysis of population changes in Southern towns and cities, with special reference to changes in farm trade and service centers.	Iowa	Yes	6-A-2
ESA 10-12	Analysis of potential replacement of population of working age, 1960-70 decade, rural and urban areas of the United States	Oklahoma	Yes	6-A-1
ESA 10-13**	Human resource development in rural communities in Rocky Mountain States.	Washington, D.C.	Yes	6-A-1
ESA 11	Farm Manpower Analysis	Washington, D.C.	Yes	6-D-2
ESA 11-1	Analyses and service work in agricultural manpower, employment, and wages.	Colorado	Yes	6-D-2
ESA 11-2	Analysis of the extent and character of participation of farm youth in higher education.	Washington, D.C.	Yes	6-B-1
ESA 11-3	Rural population and manpower adjustments associated with rapid suburbanization in rural areas.	Washington, D.C.	Yes	6-E-2
ESA 11-4	A study of Spanish-American workers in Texas and their changing role in agriculture.	Washington, D.C.	Yes	6-B-2
ESA 11-5	A study of Spanish-American workers in Michigan and their changing role in agriculture.	Texas	Yes	6-D-3
ESA 11-6	Concepts of retirement, attitudes toward retirement, and retirement plans of farmers.	Washington, D.C.	Yes	6-D-3
ESA 11-7	Effects of industrialization on rural areas in Southeastern Ohio.	Michigan	Yes	6-D-3
ESA 12	Rural Levels of Living Studies	Washington, D.C.	Yes	6-C-2
ESA 12-1	Development and maintenance of level-of-living indexes of farm families.	South Dakota	Yes	6-D-1
ESA 12-2*	Study of youths in low-income rural areas who drop out of school before completing the 12th grade.	Ohio	Yes	6-E-1
ESA 12-3*	Availability of health care personnel and facilities and health practices in rural areas of Connecticut.	Washington, D.C.	Yes	6-E-2
ESA 12-4	Factors in educational plans and career aspirations of 12th grade students in selected low-income rural counties of Florida.	Kentucky	Yes	6-E-2
ESA 12-5**	Planning for older age in rural Kentucky.	Connecticut	Yes	6-E-3
		Florida	Yes	6-E-2
		Kentucky	Yes	6-E-4

* Discontinued

** Initiated.